## INSTRUCTIONS

FOR

# SECTIONALIZING PLANS

FOR

# PRECISION-BUILT CONSTRUCTION

### INSTRUCTIONS FOR SECTIONALIZING PLANS FOR PRECISION-BUILT CONSTRUCTION

The Precision-Built Method of Construction is similar to conventional platform construction in all its major features with the exception of one -- METHOD. The method herein described makes it possible to build a frame structure in much less time than by the usual procedure and hence insures more economical and accurate construction. Big sheets of HOMASOTE (up to 8' x 14') make it possible to build large sections of walls and partitions in the franchised dealer's mill where power saws and the jig table make for speed and accuracy. All framing lumber, including rafters with difficult cuts, is pre-cut in the mill. Erection of the structure then becomes a simple matter and the average home is under roof generally the second day. Dry wall construction being a fundamental of this method, there is no delay whatsoever and all exterior and interior finish as well as plumbing, heating and electrical work proceeds immediately.

The designer should first familiarize himself with HOMASOTE, its application and uses as described in the "Descriptive Price List" issued by the HOMASOTE COMPANY. Then by studying Sheets A, B and C included in this method, he will learn the construction and use of the jig table and how wall sections are built at the franchised dealer's mill. Sheet No. 1 shows typical sections through Precision-Built walls and the designer should be thoroughly familiar with

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these before beginning to sectionalize a plan.

The floor plan is the first step. This is laid out in the usual manner, but the thickness of all walls should be 4 5/8" and all other dimensions figured accordingly. Exterior surfacing such as siding, shingles, brick veneer, etc., is applied after erection of wall sections and do not affect the wall section sizes. Show clearly all joints where sections meet during erection. For economy, no wall section should be higher than 8'-0" or longer than 14'-0"; these are the dimensions of the largest big sheet of HOMASOTE. For special conditions these dimensions of the section may be exceeded as it will be noted that the jig table is designed to take sections up to 9'-6" high and 18'-0" long. It is advisable to design so that a wall of a room may be covered by a single sheet of HOMASOTE. If a wall is longer than 14'-0", as in the case of a large room such as a living room, it will require more than one sheet to cover the surface and the joints of these sheets should be placed so that they may be concealed by "plaques" (see Sheet No. 4) at doors or windows. If no door or window occurs in a section longer than 14'-0" it is advisable to locate the joint or joints so that a pilaster, corner cupboard, bookcase or some feature in the design of the room will conceal them. If sand finish is used on the exterior of the building, joints should be located at doors or windows so that they may be concealed by plaques on the exterior as well as on the interior. If a door or window occurs at the end of a section, the jamb stud acts as the end of the section and the end stud of the adjoining section serves as the double stud for the opening at this point.

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All wall sections should be numbered on the plan. It will be noticed on Sheet No. 165-4 that certain wall section numbers have adjoining letters and these letters have the following meanings:

- E an extra 4 1/8" length of HOMASOTE providing surface to cover the end of an adjoining corner wall section.
- C double studs at one end of wall section for corner. (When determining overall length of "C" sections, be sure to allow 1/2" for extra 4 1/8" length of HOMASOTE on adjoining "E" section.)
- R right hand end of section.
- L left hand end of section.

(Right and left ends are determined by reading from numbered side of section.)

2 - condition occurs on both ends of wall section.

Examples:

Section marked "EL 4" means that section #4 has an extra 4 1/8" length of HOMASOTE at left end.

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Section marked "2 2C" means that section #2 has double stude at both ends.

See Sheet No. 3 for details of corner conditions which will further explain these instructions.

Now list all sections as shown in "Table of Sections" on Sheet No. 165-4. Show a schedule of doors similar to the one on this sheet.

After the sill detail has been determined, lay out the basement plan in the usual manner.

Elevations of the building are similar to the usual drawings with the exception that wall section heights are generally shown instead of ceiling heights (see Sheets Nos. 165-1 and 165-2). Be sure to indicate sill heights and glass sizes of windows; indicate pitch of roof.

Now lay out the first floor framing plan and list all members as shown on Sheet No. 165-3. Important members such as girders and double joists should be located by dimensions on this plan. Long girder members and headers are listed as single lengths, but these actually consist of convenient lengths chosen by the mill. Details of special cuts at the ends of members should be shown.

If the building is two storys, sectionalize the second floor plan in the same manner as the first floor plan and follow this with the second floor framing plan.

The roof framing plan should be drawn similar to that shown on Sheet No. 165-6 accompanied by the list of members. Fig. 1 on Sheet No. 5 will be an aid in roof planning. The lengths and cuts of rafters are fully explained on Sheets Nos. 6 and 7. Gambrel rafters are shown complete on Sheet No. 16.

Special wall sections are considered as those which are not rectangular in shape. Such sections as these occur frequently in houses having pitched roofs and must be detailed in outline. Sheet No. 17 covers these special sections in detail and Fig. 9 shows a typical section through the halfstory portion of a one and one-half story house. Rafter No. 1 rests on the continuous plate over the first story wall sections and the joist acts as a collar beam. Rafter No. 2 has a different pitch than Rafter No. 1 and rests on the continuous plate over the half-story wall section "W" as in the case Dimensions A, H and J are determined from of a shed dormer. the plan. The total rise of Rafter No. 1 is found from the Roof Table of its selected rise using dimension A as the run. Then the dimension ED of Rafter No. 1 plus the total rise of Rafter No. 1 establishes the top of the ridge. The total rise of Rafter No. 2 is found from the Roof Table of its selected rise using dimension A as the run.

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#### Wall Section W

To find the height of wall section W, add the total rise of Rafter No. 1 to ED of Rafter No. 1 and subtract from this sum the total rise of Rafter No. 2 plus ED of Rafter No. 2 plus 1 5/8" (continuous plate over section W) plus the floor construction.

#### Wall Section X

The ceiling height is always measured from the top of the single flooring to the underside of the ceiling HOMASOTE, hence the overall height of wall section X equals the ceiling height minus 1 1/8" (allowance for continuous plate minus ceiling HOMASOTE).

Dimension Fl is found from the table of Common and Jack Rafters (for the selected rise of Rafter No. 1) if the depth of the rafter is used as the run; for instance, if the rafter is 2" x 6" the depth is 5 5/8" (actual size of a 6" member).

Dimension B equals the floor construction minus ED of Rafter No. 1.

Then dimension Cl equals the total rise of Rafter No. 1 minus the sum of Fl plus B plus the overall height of section X. Dimension G is therefore the run if Cl is used as the total rise and is found in the Roof Table of the selected rise for Rafter No. 1. Thus K equals H minus G; L is the total rise if K is the run; and M equals the overall height of wall section X minus L.

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It is now obvious that similar dimensions to Cl, G, K, L and M on the other end of wall section X may be found by the same procedure, but notice carefully that F2 depends upon the pitch of Rafter No. 2 and hence the basic dimension C2 on this side of the ridge is longer than Cl.

The detail of wall section X as part of a complete set of drawings should be shown only in outline as in Fig. 10 at the

scale of 1/4" equals 1'-0".

#### Wall Section Y

This wall section runs parallel to the ridge. A dimension such as N which bears a definite relation to points and dimensions already known, can usually be determined. Hence P is the total rise (using selected rise of Rafter No. 1) if N is the run. Therefore the height of wall section Y equals M minus P. The bevelled plate on top of wall section Y is cut to fit the slope of the rafter to insure good nailing and a snug fit as well as to receive the upper edge of HOMASOTE on the section. No HOMASOTE is required on the outside of this section.

It is now evident that with experience the designer will be able to calculate quickly the necessary dimensions for special wall sections and that the use of the Roof Tables will enable him to find dimensions for these sections by other means than those described here.

Gable end sections are also considered special and should be detailed in outline as shown on Fig. 12. The dimensions for gable end sections are figured similarly to those of half-story sections. Fig. 11 shows the two conditions which occur because of joist direction. From experience these have been found to be the simplest methods of handling and those giving the best results. Interior HOMASOTE on gable end sections, if required for finished rooms, is applied after erection of sections so that only those parts of the sections within the room may have a finished wall surface. Some blocking is necessary for this application as all edges of HOMASOTE must be nailed. noted on Fig. 11, the ridge passes through the framing to the back of the exterior HOMASOTE. This permits the end of the ridge to be nailed to the top members of the gable end section. Obviously from Fig. 11, it will be seen that the top of the gable end sections is coincident with the top of the rafters.

The Precision-Built system of construction can be adapted to meet varying building codes in different sections of the country. While we recommend platform construction as best for speed and economy, it is perfectly possible to design so that studs may run down to the sill, so that corner posts and even girts may be used. If balloon construction is required the free guide on the jig table may be removed and two new short guides may be made and placed in position at the ends of the table. Then, the wall sections would be made 8'-0" wide maximum and up to whatever height required not exceeding 17'-0" maximum. Ribbons would then be set into the studs to take the exterior HOMASOTE and the second floor joists on the interior. The HOMASOTE would then be applied on the exterior only

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and the interior HOMASOTE would then be applied after the

sections are in place.

Although we show the wall sections bolted down to the foundation, this is done particularly to take care of hurricane conditions. We consider it good practice to toe-nail the wall sections through the sub-flooring into the joists. In cases where it is necessary to firestop or provide rodent protection the best practice is to cut the exterior HOMASOTE to a line representing the top point of the firestop or rodent protection and then either concrete or brick in from the exterior according to the requirements of the local building code. Then apply the remaining piece of HOMASOTE to the studs. No catting or blocking is required at this point unless sand finish treatment is going to be used.

At exterior corners, and where partition walls abut exterior walls, sections should either be spiked or lagscrewed together. After wall sections are erected the continuous plate should be run over the top of all sections as shown in the details. At this point the Big Sheets of HOMASOTE for the ceilings should be put in the building. Ceiling HOMASOTE for the second floor should be put into the building before the second floor is entirely closed in. Then the second floor joists are laid and either the sub-flooring or the finished flooring is applied. a single floor is to be used be sure to cover immediately with waterproof building paper before erecting second floor sections or gable ends.

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If desired, window and door frames may Window and Door Frames: be incorporated in the section at time of construction on jig table and this is absolutely necessary in cases where no interior or exterior casings or trim are to be used. However, we prefer that window and door frames be put in on the job because, if the floor should not be entirely level, they may be out of true if put in on the jig table.

The purpose of the 1" cement grout under the sill on the top of the foundation is primarily for purposes of leveling the first floor platform.

Plumbing: Plumbing in Precision-Built construction is handled exactly the same as in conventional construction with the exception that the HOMASOTE on the interior of bathroom and kitchen walls should be applied after the rough plumbing has been installed. Owing to the speed of construction the plumber should be notified immediately the contract is signed just when he is to be on the This will avoid serious delays.

Warm Air: Warm air heating ducts for one story construction may be installed in the same manner as for conventional work. For two story construction the heating ducts should be installed on the jig table at the time the section is constructed or it will be necessary for the heating man to be on the job and make the installation from above before the roof rafters are placed. Ducts running to second story should be put in interior In designing wall sections and laying out first wall sections. and second floor joists care must be exercised that the stude in

second floor sections correspond to the stude in first floor sections and joists be placed so as to allow free passage of the ducts.

Steam, Hot Water, or Vapor Vacuum Heat: For these types of heating the work proceeds as in the case of conventional construction with the exception that risers to the second floor are put in the exterior walls from the outside of the structure. This is accomplished by cutting a chase in the HOMASOTE on the exterior. When cutting this HOMASOTE out be sure to cut at an angle on each side of the cut so that the angles converge toward each other from the exterior to the interior. In this way the piece may then be glued back into place with Sote Glue. Care must be exercised to see that risers are properly covered.

Electrical Work: All electric wiring is fished as in the case of remodeling work except in the case where conduits are used. In this instance the conduits are installed at the time of construction of the section on the jig table and nipples are attached to the ends of the conduits to protect the threads in transportation and erection. Where the cable is fished care should be exercised, if building codes require lateral blocking in the section, to see that such blocking be placed at a position above the switch boxes.

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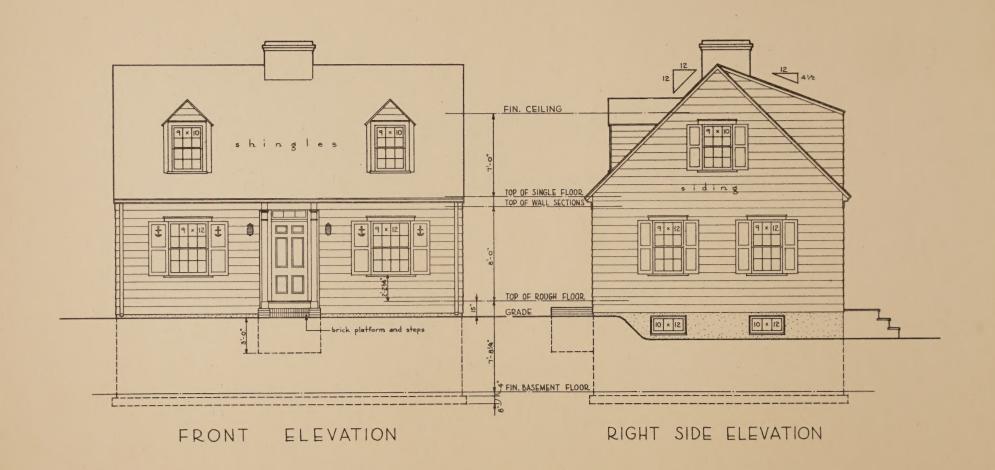
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Electrical outlet boxes may be attached directly to the HOMASOTE by the use of metal wallboard clips. The electrician should be called on the job at the earliest possible moment so that cable to ceiling outlets may be installed before gluing the HOMASOTE.

A careful study of the Simplified Method of Planning and these instructions indicates definitely the simplicity of Precision-Built construction. Outside of the fact that the walls and partitions are built sectionally, the framing lumber precut and no plaster is used, Precision-Built construction is the same as conventional construction. With this system there is the same degree of flexibility as with conventional construction, but the method employed makes for economy and speed. Anyone who will take the time to acquaint himself with the method we feel sure will find it not only extremely simple but most practical.

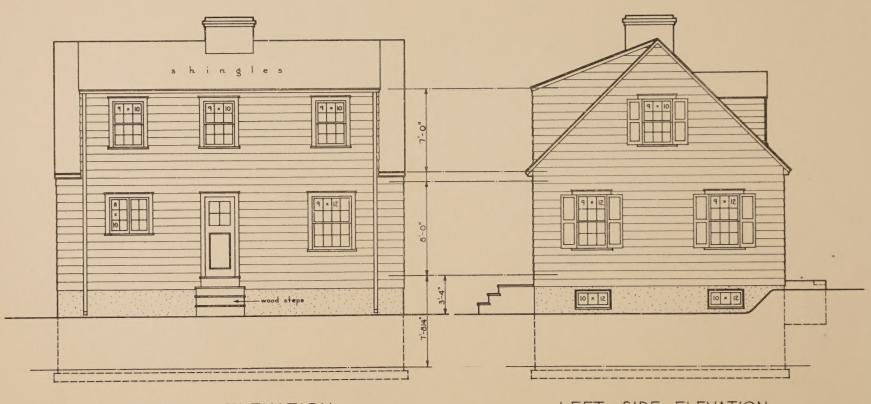


HOMASOTE COMPANY
TRENTON, NEW JERSEY
W HENRY NEUBECK - ARCHITECT

HOMASOTE.
PRECISION - BUILT!
HOME No 165

SCALE VA 27N BT CHICAGO DRAWING N.
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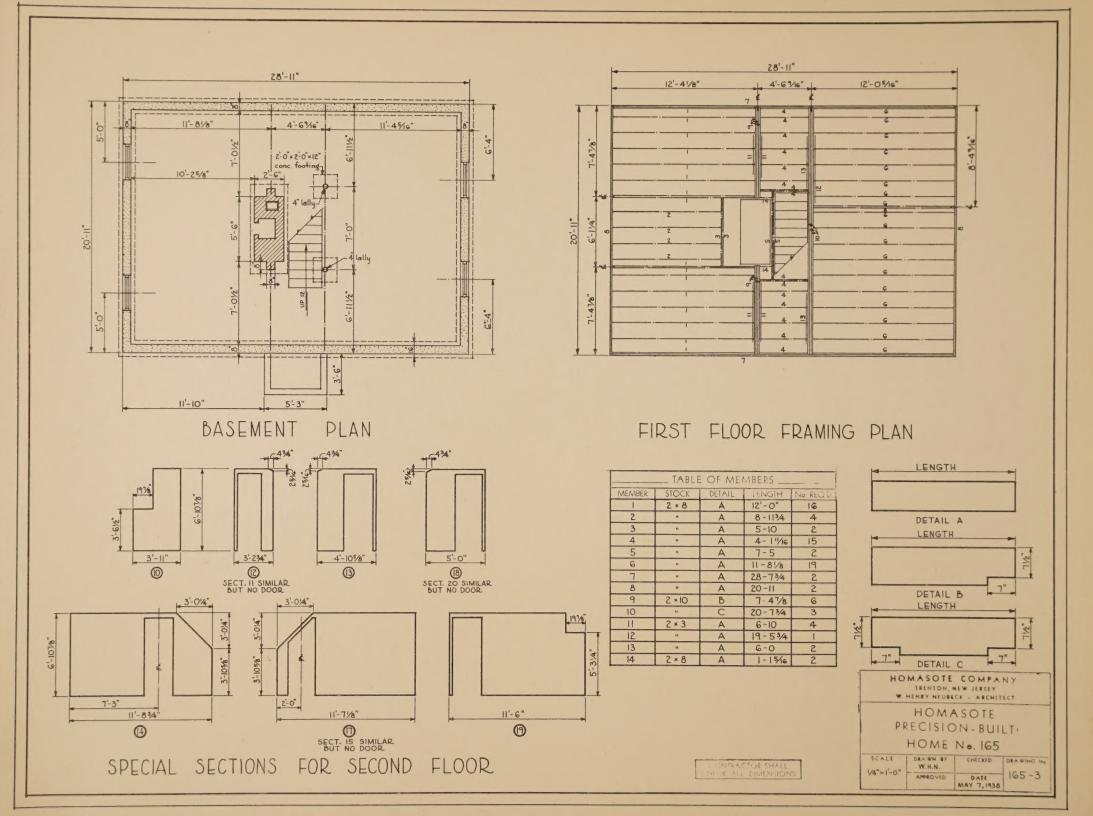


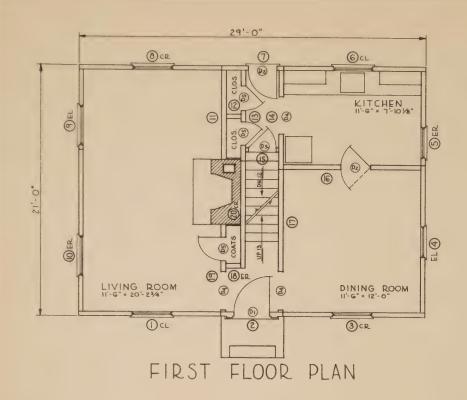
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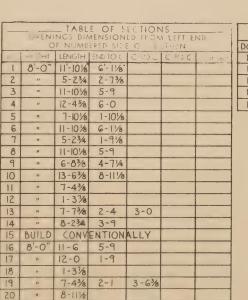
HOMASOTE COMPANY TRENTON, NEW JERSEY
W HENRY NEUBECK - ARCHITECT HOMASOTE PRECISION - BUILT' HOME No. 165 SCAFE DRAWN BY | CHECKED DRAWING No

1/4"=1-0" DATE MAY 1,1938

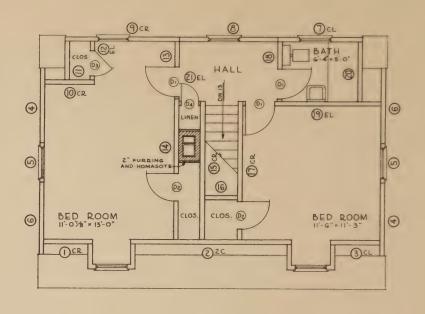
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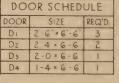


DO	OR SCHED	ULE
DOOR	SIZE	REQ'D.
Dı	3'-0" * 6'-8"	1
Dz	2-6 * 6-8	2
Dз	2-4 × 6-8	
D4	3-0 × G-8 CASED OPENING	3
D5	2-0×6-8	3



SECOND FLOOR PLAN

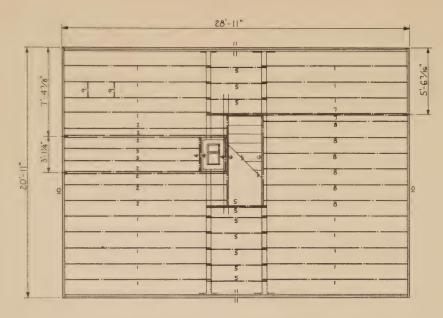
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3	11	4-15/8				
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6	14	#1	н	n	to	a
7	6-63/4	7-03/4	3-101/8			
8	11	8-15/8	4-61/2			
9	11	9-95/8	5-11/2			
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HOMASOTE COMPANY TRENTON, NEW JERSEY
W HENRY NEUBECK - ARCHITECT

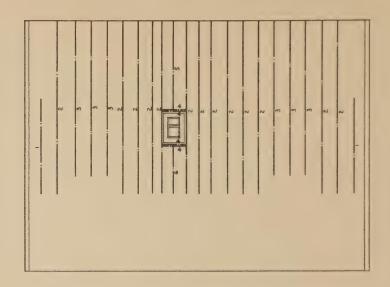
HOMASOTE PRECISION - BUILT

HOME No. 165 4"=1"-0" W.H.N. DATE 165-4 1/4"=1'-0"

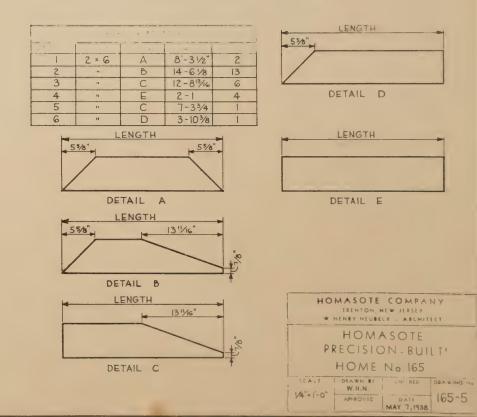


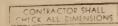
SECOND FLOOR FRAMING PLAN

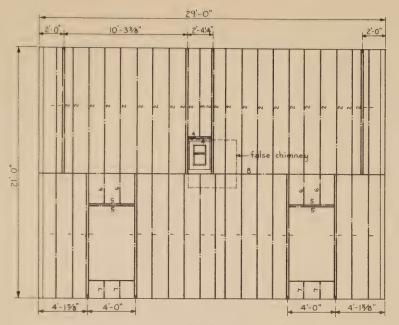
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	2 × 8		12'-0"	17
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. 3	н	S S	11-43/4	2
4	н	Ш	2-10	3
5	н	ARE	5-3	10
6	tt.		7-51/2	2
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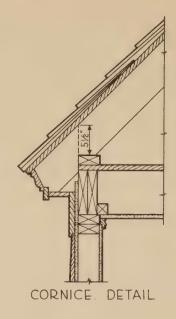


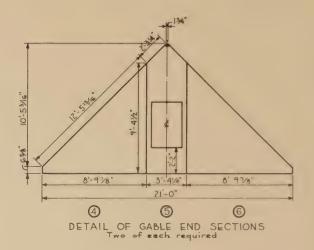
SECOND FLOOR CEILING FRAMING





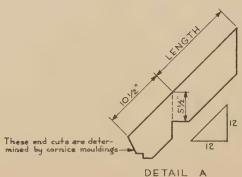


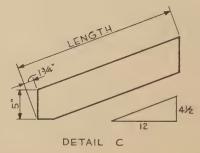


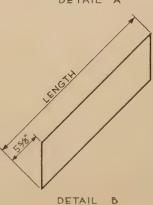


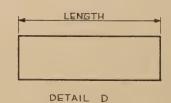
ROOF FRAMING PLAN

TABLE OF MEMBERS												
MEMBER	OCK	Dt A.L	LETA OTH	+0 KL /.								
	2 × 6	А	14'-876	25								
2	14	С	11-31/2	22								
3	*	С	7-11/2	1								
4	2 × 8	D	2-1	2								
5	el	D	3-83/4	4								
6	2 × 6	В	3-67/6	4								
7	11	Α	2-013/16	4								
8	2 × 8	D	28-11									









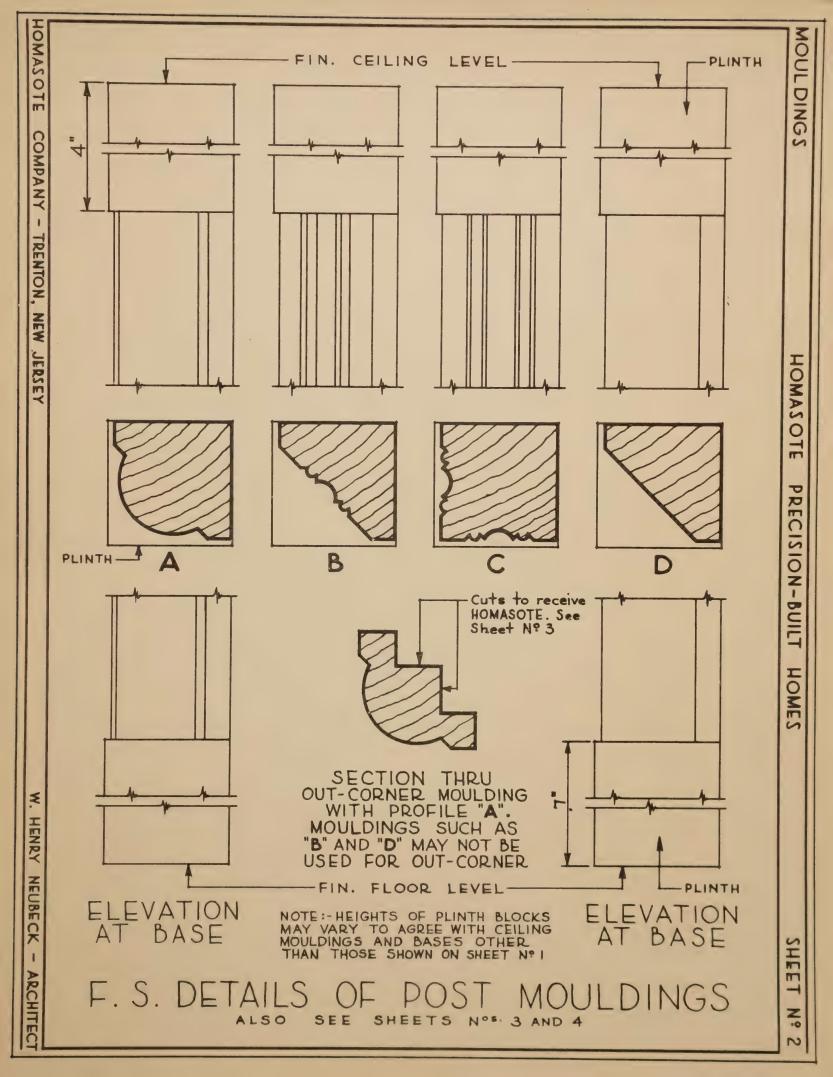
HOMASOTE COMPANY TRENTON, NEW JERCEY
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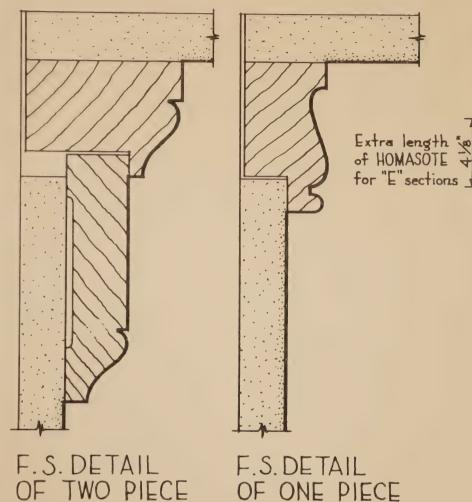
HOMASOTE PRECISION - BUILT

HOME No. 165

DATE 165-6

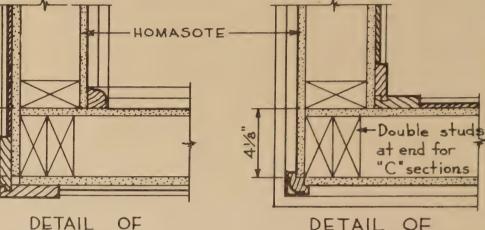
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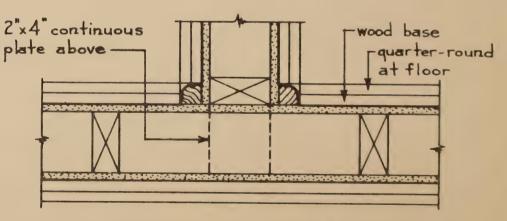
OF ONE PIECE CEILING MOULDING

Note: - Other profiles may be used, but for successful results the mouldings must be rabbeted as shown to permit direct nailing to continuous plate and also allow for expansion and contraction of HOMASOTE on both ceiling and side walls. Also see sheets Nos. I and 4.



TYPICAL EXTERIOR TYPICAL EXTERIOR OUT - CORNER. IN-CORNER Showing interior in-Showing interior outcorner post moulding corner post moulding

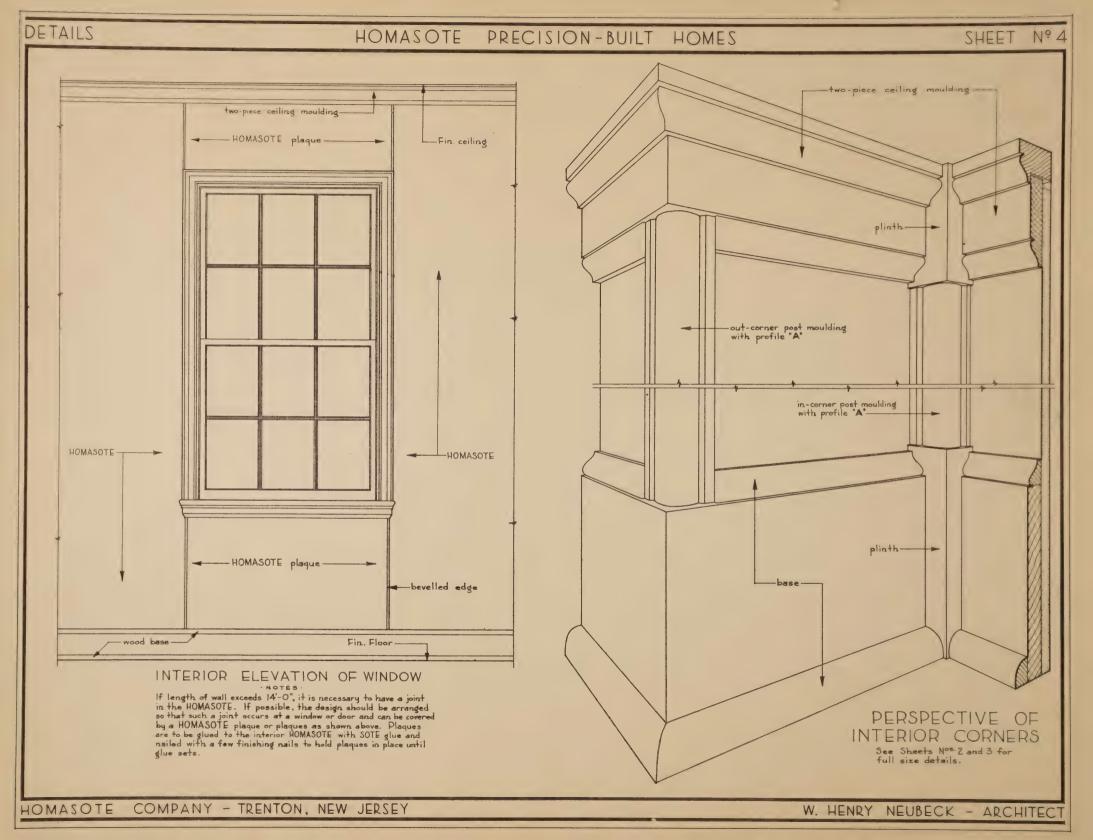
Note: - See "Instructions for Sectionalizing" for correct markings of wall sections at corners.

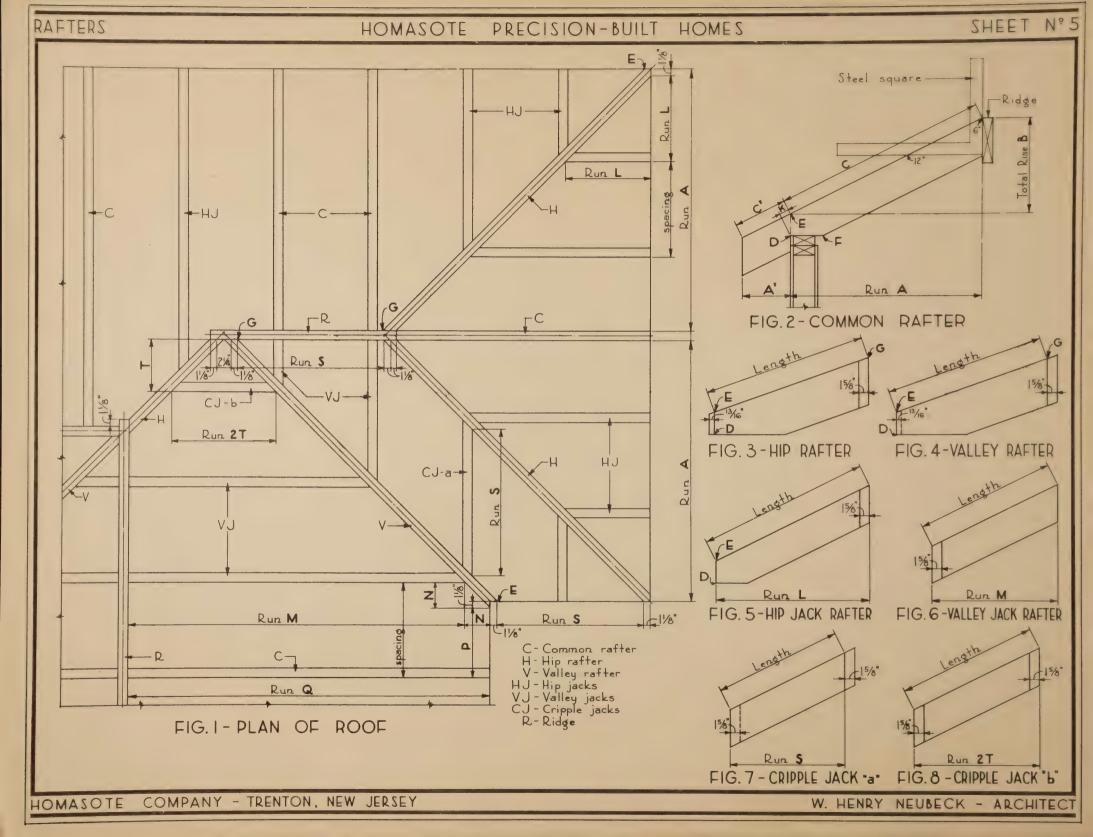


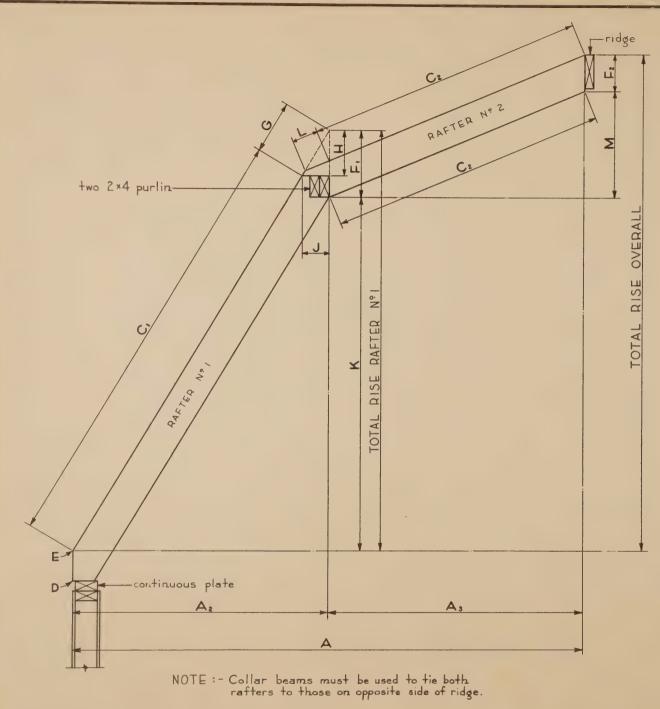
DETAIL OF TYPICAL PERPENDICULAR INTERSECTION

CEILING

MOULDING







The lengths and cuts of gambrel rafters are found as follows:

#### RAFTER Nº I

The cuts at the end resting on the continuous plate are determined by the same method as used for common rafters.

Fi is the dimension measured along a plumb cut and is found from the table for Common and Jack Rafters (for the selected rise) if the depth of the rafter is used as the run.

Example 1
Rafter is 2×6 (15%"×55%" actual size)
Rise 20"
Run Length (from table)
5" - 934"
05%" - 114"
55%" - 11" dimension Fi

H equals  $F_1$  minus  $3\%8"(1\%" \times 3\%8"$  actual size of  $2 \times 4$  purlins).

of 2×4 purlins).

J is the run if H is the total rise.

Example 2

Hequals 73/8" Rise 20"

Total rise Run (from table)
7" - 45/16"
03/8" - 03/16"
73/8" - 41/2" dimension J

To find length C1, dimension A2 must first be set by the designer. Then C1 plus G is found from the table of Common and Jack Rafters (for the selected rise) if A2 is the run. G is found from the same table if J is the run.

#### RAFTER Nº 2

Find Cz A3 equals A minus A2. Cz is found from the table of Common and Jack Rafters (for the selected rise of Rafter N° 2) if A3 is the run.

Find L

Let Riequal rise of Rafter N°1.

R2 " " " " " " N°2.

X equal the length of a common ratter with rise R2 and a 12 run.

F2 is found from the table of Common and Jack Rafters (for rise R2) if the depth of the rafter is used as the run.

Then L = X multiplied by (F1 minus F2)

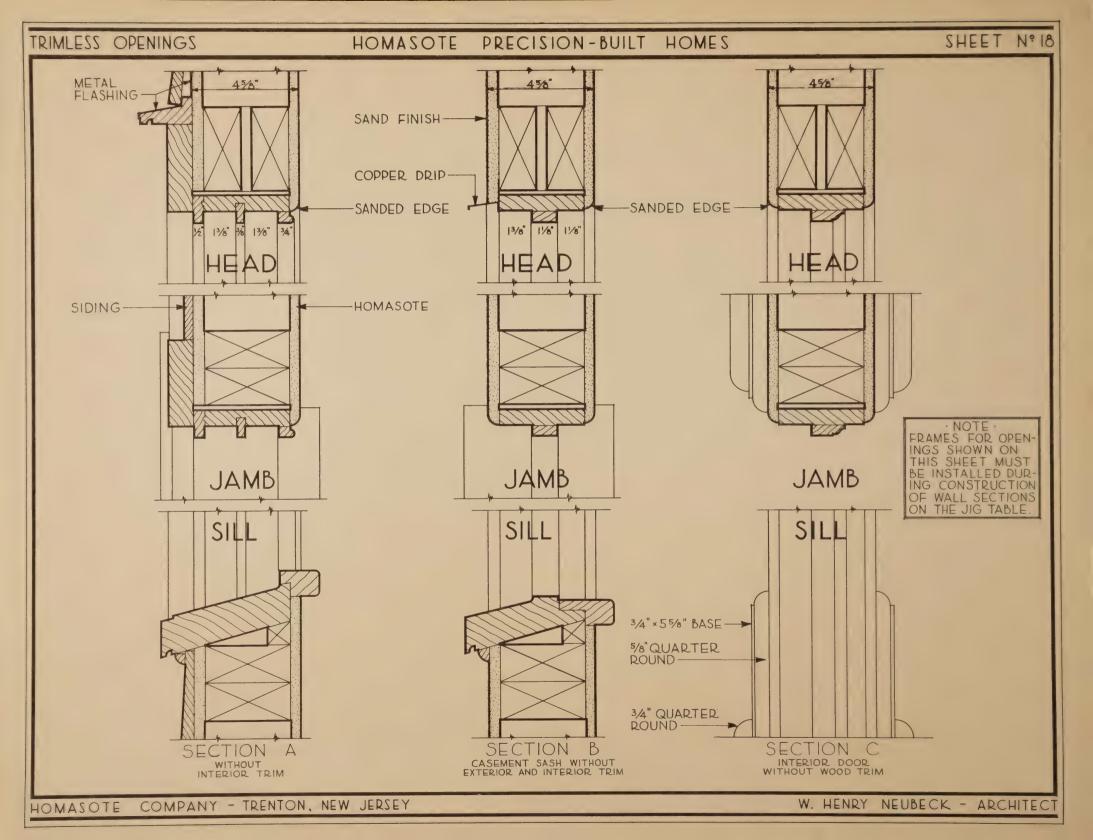
R1 minus R2

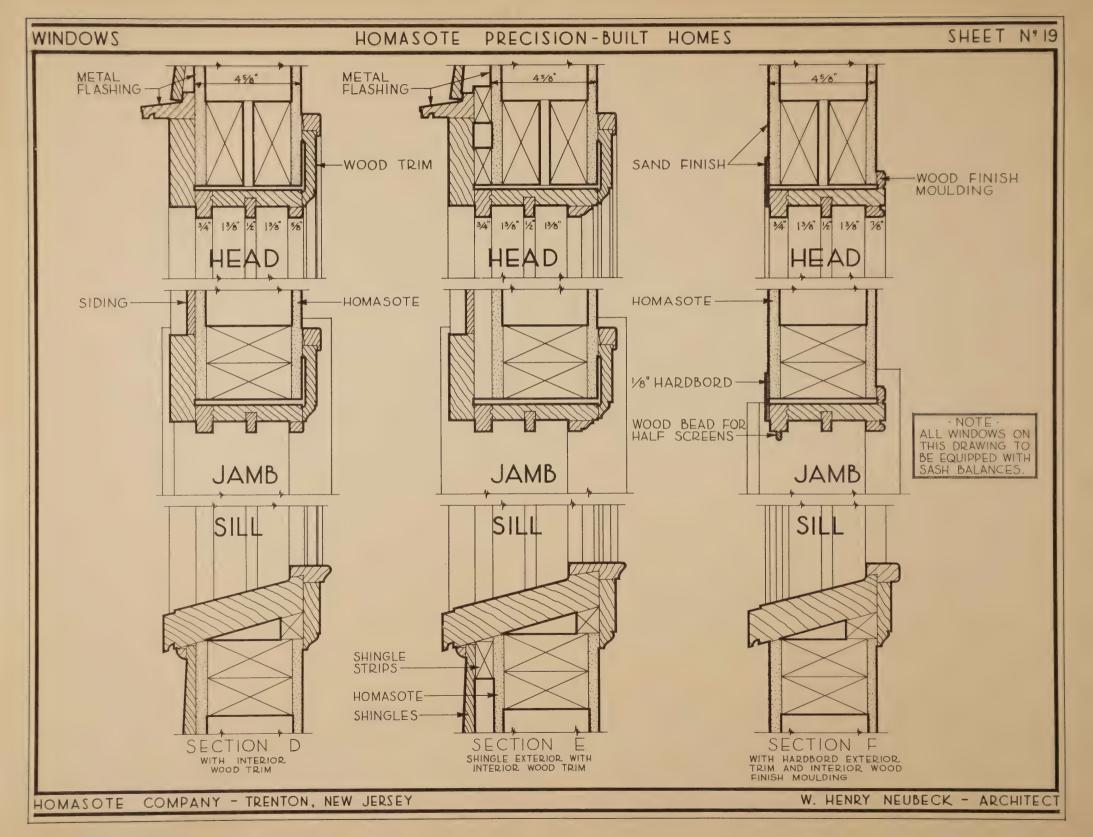
Example 3  $R_1 = 20$ "  $R_2 = 5$ " X = 13"  $F_1 = 11$ "  $F_2 = 6\frac{1}{8}$ " Then  $L = \frac{13(11 - 6\frac{1}{8})}{20 - 5} = 4\frac{1}{4}$ "

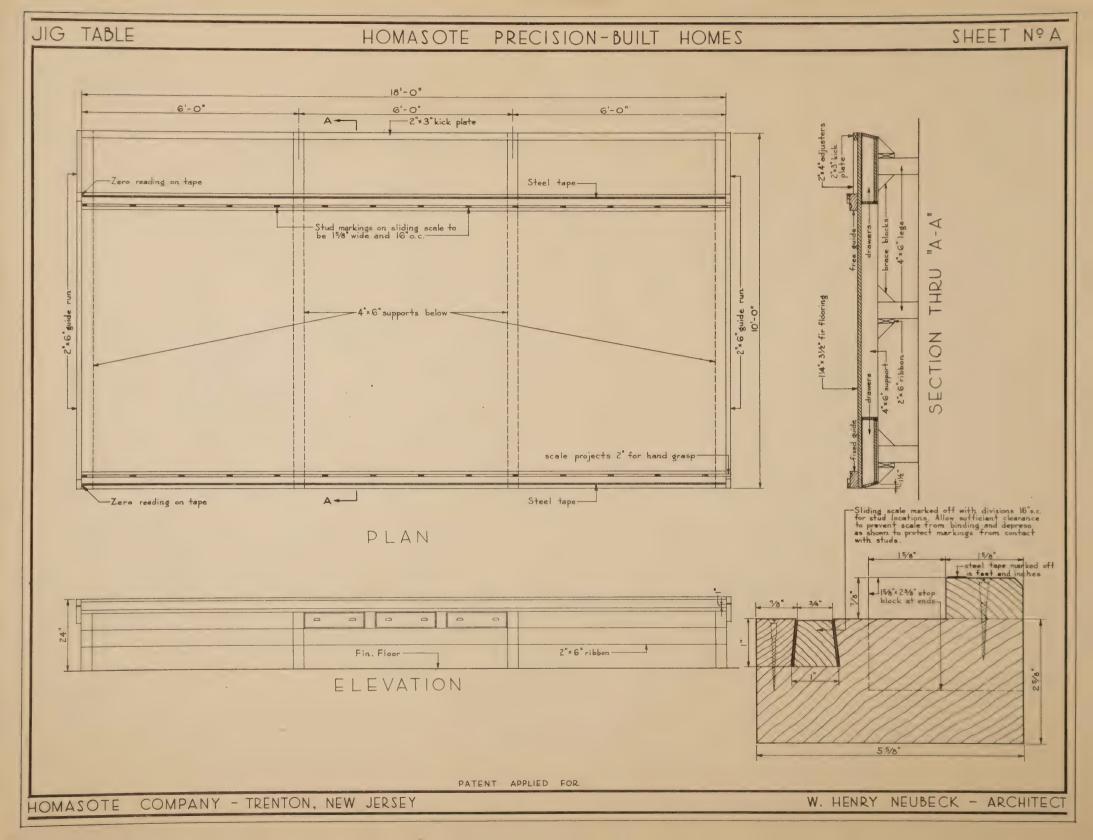
M = total rise of Rafter N°2 if A3 is the run.

K = " " N°1 minus F1.

Therefore the Total Rise Overall = K+M+F2.







CUT ALL LUMBER TO SIZE AND BUILD FRAMING FOR OPENINGS BEFORE BUILDING WALL SECTIONS ON JIG TABLE.

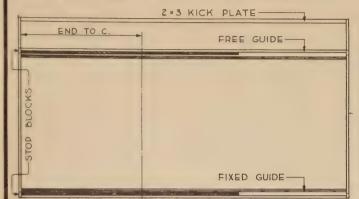


FIG. 1 - LOCATE THE FREE GUIDE ON THE FLOOR OF THE TABLE SO THAT THE DISTANCE BETWEEN THE FREE AND FIXED GUIDES IS APPROXIMATELY THE HEIGHT OF THE WALL SECTION. PLACE THE TOP AND BOTTOM PLATES OF THE SECTION IN THE GUIDES AS SHOWN SO THAT THE LEFT END OF THE SECTION IS AGAINST THE STOP BLOCKS AT THE LEFT ENDS OF THE GUIDES. THESE POINTS ARE ALSO THE ZERO READINGS OF THE STEEL TAPES ON THE GUIDES. LOCATE THE CENTER LINE OF OPENING BY MEANS OF THE STEEL TAPES AND MARK ON BOTH PLATES OF WALL SECTION.

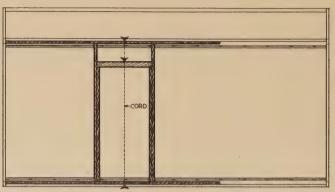


FIG. 2 - PLACE FRAMING FOR OPENING AS SHOWN BY MEANS OF A CORD DRAWN FROM PLATE TO PLATE ON THE CENTER LINE.

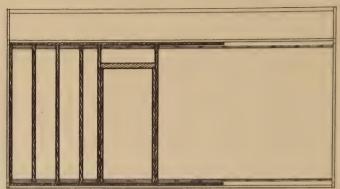
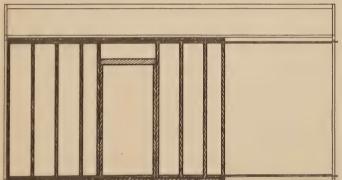


FIG. 3 - LOCATE LEFT ENDS OF SLIDING SCALES AT LEFT END OF SECTION AND PLACE STUDS AT MARKINGS ON SCALES FROM LEFT END OF SECTION TO OPENING.

#### TO ITHIS SHEET APPLIES INTERIOR WALL SECTIONS ONLY SEE SHEET N°C FOR EXTERIOR WALL SECTION CONSTRUCTION



HAND END OF SECTION.

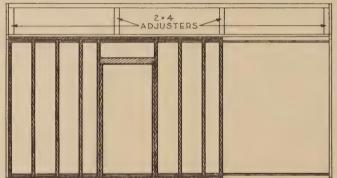


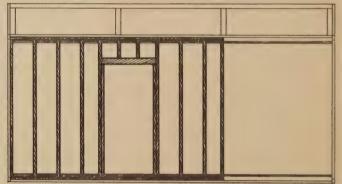
FIG. 4 - MOVE SLIDING SCALES UNTIL A STUD MARKING COINCIDES WITH RIGHT HAND STUD OF OPENING. PLACE REMAINING
STUDS AT MARKINGS ON SCALES FROM OPENING TO RIGHT

FIG. 5 - PLACE ADJUSTERS, THUS SQUARING SECTION, AND
TRUE STUDS AND FRAMING FOR OPENING. NAIL TOP AND
SHOWN AND NAIL.

FIG. 5 - PLACE CRIPPLES ABOVE HEAD OF OPENING AS
THUS STUDS AND FRAMING FOR OPENING.

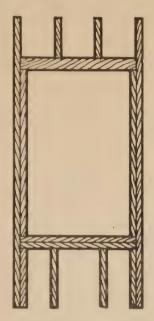
STUDS AT MARKINGS ON SCALES FROM OPENING TO RIGHT

FIG. 5 - PLACE CRIPPLES ABOVE HEAD OF OPENING AS
THUS SQUARING SECTION, AND
SHOWN AND NAIL.



AFTER THE FRAMING FOR THE SECTION IS COMPLETE, REMOVE THE AD-JUSTERS TO RELEASE THE FREE GUIDE. MOVE THE FREE GUIDE TOWARD 2×3 KICK PLATE SO THAT THE SECTION MAY BE PLACED FLAT ON THE FLOOR OF TABLE. APPLY HOMASOTE WITH SOTE GLUE AND EDGE NAIL-ING. MARK OPENING AND CUT OUT WITH SKILL SAW. APPLY 1×2 PRESSURE STRIPS ON STUDS. TURN SECTION OVER, APPLY HOMASOTE, MARK AND CUT OPENING AND APPLY STRIPS.

#### HOW TO USE THE JIG TABLE



FRAMING FOR OPENING

Cut all lumber to size and build the framing for openings as shown on the adjoining drawing before building wall sections on the jig table. Locate the free guide on the floor of the table so that the distance between the free and fixed guides is approximately the height of the wall section. Always build sections by starting at the left hand end and working toward the right. Be sure that the sliding scales are in the original position (as shown on Sheet No. A) for the first wall section of an exterior wall group. A wall group consists of those sections which comprise a straight run of wall and the stude in such a group should be on 16" centers throughout the length of the entire wall and starting from the left end. Stude at the ends of wall sections will be the only ones not governed by this centering.

For the first wall section of a group, place top and bottom plates of the section in the guides so that the left end of the section is against the stop blocks at the left ends of the guides. These points are also the zero readings of the steel tapes on the guides. If a window or door opening occurs in the section, locate its center line by means of the steel tapes and mark on both plates of wall section. Place framing for opening by means of a cord drawn from plate to plate on the center line. Place stude at all markings on the sliding scales within the section and a stud at the right hand end of the section, excepting of course the opening. Place adjusters, thus squaring the section, and

true studs and framing for opening. Nail all members of the section together. Cripples above the head and below the sill of the opening may be placed and nailed at this time if they have not already been included as a part of the framing for the opening. If a heating duct or radiator occurs in the wall beneath a window, the cripples should be placed to provide for this.

Now note the distance from the right hand end of the section to the left hand edge of the next stud marking to the right on the sliding scales. This dimension is the distance between the stop blocks and the ends of the sliding scales at the left end of the table when the scales are moved into position for the second section of the group. In the same manner this dimension is determined from section to section until the group is complete. Then place the scales in the original position and begin again for the next group. Only exterior wall sections are built in groups. HOMASOTE on the exterior side of a section is applied with nails only whereas HOMASOTE on all interior sides of sections is applied with SOTE glue and edge nailing, plus 1"x 2" pressure strips.

THIS SHEET APPLIES TO EXTERIOR WALL SECTIONS ONLY See Sheet No. B for interior wall section construction

#### ROOF FRAMING

The following explanation and tables are designed as an aid to both the architect and the contractor. The lengths and cuts of all rafters depend upon the selected rise in inches per one foot of run and are explained by the drawings on Sheet No. 5. Lengths are listed in the Roof Tables.

COMMON RAFTERS (Figs. 1 and 2)

The distance ED from the top of the continuous plate to the top of the rafter is a variable distance set by the designer and is determined by special conditions such as cornice details, roof pitches, etc. For average conditions with a rafter having no projection, ED may be set to the dimensions noted on the Table of "K" Dimensions (precedes Roof Tables). This makes it possible to determine dimension "K" for any rise and hence the <u>overall</u> length of a common rafter.

As the run A (Fig. 2) and the rise are known, the length C is found from the table of Common and Jack Rafters for the selected rise.

Example 1

Rise 6" and run A equals 10'-5 1/2"

Run Length (from table)

10'-0" - 11'-2 3/16"

5" - 5 5/8"

0 1/2" - 0 9/16"

10'-5 1/2" - 11'-8 3/8" length C

Length C' is found similarly from run A.
The total rise B is found from the Table of Total Rise.
Example 2

Rise 6" and run A equals 10'-5 1/2"

Run Total Rise (from table)

10'-0" - 5'-0"

5" - 2 1/2"

0 1/2" - 0 1/4"

10'-5 1/2" - 5'-2 3/4" total rise B

Plumb cuts at ridge and at ED are marked off with the steel square as shown. After distance ED is measured, level cut DF is marked off perpendicular to plumb cut ED.

HIP AND VALLEY RAFTERS (Figs. 1. 3 and 4)

Distances ED (Fig. 3) and ED (Fig. 4) equal distance ED of common rafter.

As the run A and the rise are known (Fig. 1), the length GE (Figs. 3 and 4) is found from the table of Hip and Valley Rafters for the selected rise.

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T. Each successive cripple jack rafter "b" is increased of decreased in length, as the case may be, by twice the dimension listed in the Table of Spacing for the selected rise.

Cuts at ends of all rafters are made by using the steel square. The run of hip and valley rafters is 17" for the selected rise; the run of all other rafters is the usual one foot for the selected rise.

Example 3
Rise 6" and run A equals 10'-5 1/2"
Run Length (from table)
10'-0" - 15'-0"
5" - 7 1/2"
0 1/2" - 0 3/4"
10'-5 1/2" - 15'-8 1/4" length GE

The short hip rafter from ridge to ridge (Fig. 1) is similar to Cripple Jack "b", but the length is taken from the table of Hip and Valley Rafters.

HIP JACK RAFTERS (Figs. 1 and 5)

Distance ED (Fig. 5) equals ED of common rafter.
As the run L (Fig. 1) and the rise are known, the length (Fig. 5) is found from the tables by the same method as described for common rafters and as shown in Example 1.

VALLEY JACK RAFTERS (Figs. 1 and 6)

Distance N (Fig. 1) equals the spacing minus distance P. Run M equals run Q minus N. Then from the tables the length is found from run M by the same method as described for common rafters and as shown in Example 1.

Each successive valley jack rafter (or hip jack rafter) is increased or decreased, as the case may be, by the dimension listed in the Table of Spacing for the selected rise.

Example 4

If the rise is 6" and the spacing of rafters is 16" on centers, the difference in length between successive hip jack or valley jack rafters is 17 7/8".

CRIPPLE JACK RAFTERS (Figs. 1, 7 and 8)

Length of Cripple Jack Rafter "a" is found from run S (Fig. 1) by the same method as described for common rafters

and as shown in Example 1.

Length of Cripple Jack Rafter "b" is found from run 2T (Fig. 1) by the same method as described for common rafters and as shown in Example 1. Run 2T equals twice the distance T. Each successive cripple jack rafter "b" is increased or decreased in length, as the case may be, by twice the dimension listed in the Table of Spacing for the selected rise.

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TABLE OF "K" D	IMENSIONS
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RISE	ED = 3" FOR 2 * 4 RAFTERS	ED = 5" FOR 2×G RAFTERS	ED=7"	RISE	ED=3" FOR 2×4 RAFTERS	ED=5"	ED=7" FOR 2×8 RAFTERS
2	01/2	0 13/16	1 1/8	101/2	2	3 5/6	4 5/8
21/2	0 5/8		1 7/16		2	3 3/8	4 3/4
3	0 3/4	1 3/16	1 11/16	111/2	21/16	3 7/16	4 7/8
31/2	0 13/16	1 3/8	1 15/16	12	21/8	3 9/16	4 15/16
4	0 15/16	1 9/16	2 3/16	121/2	2 3/16	3 5/8	5 1/16
41/2	1 1/16	3/4	2 1/16	13	2 3/16	311/16	5 1/8
5	1 1/8	1 15/16	2 11/16	13 1/2	21/4	3 3/4	51/4
51/2	1 1/4	2 1/16	2 15/16	14	21/4	3 13/16	5 5/16
6	5/16	21/4	3 1/8	141/2	2 5/16	3 7/8	5 3/8
61/2	1 7/16	2 3/8	3 5/16	15	2 5/16	3 7/8	5 7/16
7	1 1/2	2 1/2	3 1/2	151/2	2 3/8	3 15/16	5 %
71/2	1 9/16	2 5/8	3 11/16	16	2 3/8	4	5 5/8
8	1 11/16	2 3/4	3 7/8	161/2	2 1/16	4 1/16	5 11/16
81/2	3/4	2 7/8	4 1/16	17	2 7/16	4 1/16	5 3/4
9	1 13/16	3	4 3/16	171/2	21/2	4 1/8	5 3/4
91/2	1 7/8	3 1/8	4 5/16	18	2 1/2	4 3/16	5 13/16
10	1 15/16	3 3/16	4 1/2				

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	R	0	0	F	TA	B	L	E:	S

12 16 18 20	CENTE	RS 123, RS 161, RS 181, RS 201,	16"	/iz	Rise Pitch	<b>2"</b> 9°27'	16	" CENTE	25 163 25 183 25 207	4" /8" /8"	5/48	Rise Pitch	<b>2½</b> "   °46'	16 18 20	CENTE	RS 18%	/8" /16" /8"	1/8	Rise Pitch	3" 14°2'
RUM	COMMO JACK R.	N AND AFTERS	HIP	EY		RISE	RUN	COMMO JACK R	AFTERS	HIP /	EY.	TOTAL		RUN	JACK R	N AND	VAL	EY.		RISE
	Feet	Inches	Feet	Inches	Feet	Inches		Feet	Inches	Feet	inches	Feet	Inches		Feet	Inches	Feet		Feet	inches
1/4		4		3 8			1/4		4		38			1/4		4		3 8		
1/2		2		3 4			1/2		2		<u>3</u> 4			1/2		2		3 4		
3,4		34		16			3/4		3 4		116			34		3 4		116		
	$1-0\frac{3}{16}$	1	1-5%	17/16	2	3 16		1-04	1	1-53	17/16	21/2	3 16		$1-0\frac{3}{8}$	116	1-54	17/16	3	4
2	2-05	2	2-103	27/8	4	5	2	2-01	21/16	2-105	27/8	5	7 16	2	2-03	21/6	2-107	278	6	1 2
3	3-0=	31/6	4-31/4	44	6	1/2	3	3-03	316	4-376	45	7늘	5/8	3	3-11/8	3 1/8	4-316	4 5 16	9	3 4
4	4-01/16	416	5-83	5 !!	8	11	4	4-11/16	41/16	5-85	53	10	13	4	4-1-	48	5-815	53	1-0	
5	5-013	516	7-176	71/8	10	13	5	5-15	5등	7-13	71/8	1-0=	11/16	5	5-13	53	7-23	73	1-3	14
6	6-1	616	8-62	89	1-0		6	6-19	68	8-615	89/16	1-3	14	6	6-24	63/6	8-77	85	1-6	11/2
7	7-13/16	78	9-118	10	1-2	13/16	1	7-113	73/16	10-016	10	1-51/2	17/16	7	7-29	74	10-05	101	1-9	13/4
8	8-15	81	11-411	113	1-4	15/16	δ	8-216	83/6	11-54	1176	1-8	111/16	8	8-215	84	11-57	11/2	2-0	2
9	9-1=	91	12-9/13	1-013	1-6	1/2	9	9-25	93	12-103	1-078	1-10-	13	9	9-35	94	12-118	1-015	2-3	24
10	10-11/16	10 1/8	14-27	1-24	1-8	11/16	10	10-29	101	14-39	1-25	2-1	21/6	10	10-311	105	14-45	1-23	2-6	21/2
	11-113	113/16	15-8	1-311	1-10	113		11-213	114	15-811	1-33	2-31/2	25	П	11-41	115	15-99	1-313	2-9	23
12	12-2	1-03/16	17-116	1-5%	2-0	2	12	12-31/8	1-04	17-13	1-53	2-6	21/2	12	12-47	1-03	17-213	1-54	3-0	3
13	13-23		18-6ई		2-2		13	13-33		18-7		2-8-1		13	13-41		18-81		3-3	
14	14-25		19-114		2-4		14	14-35		20-03		2-11		14	14-53		20-14		3-6	
15	15-21		21-45		2-6		15	15-37		21-55		3-1-2		15	15-5%		21-6=		3-9	

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- 50							-	RO	OF		TAI	BLE	S							
12° 16° 18° 20 24	CENTE CENTE CENTE CENTE	SPACI RS 12 1/2 RS 16 11/2 RS 18 3/2 RS 20 13/2 RS 25 11	NG	7/48	Rise Pitch		12 16 18 20 24	ABLE OF CENTE	SPAC RS 12 5 RS 16 7 RS 18 18 RS 21 19 RS 25 5	ING /8" /8" /16"	1/6	Rise Pitch		12 16 18 20 24	ABLE O " CENTE " CENTE " CENTE O" CENTE	F SPAC RS 12 1 RS 17 1 RS 19 1 RS 21 3 RS 25 5	ING %16" /16" /4" /8"	9/48	Rise Pitch	
RUN	JACK R.	AFTERS	HIP	EY	TOTAL	RISE		COMMO	AFTERS	HIP	AND	TOTAL	RISE	21116	JACK R	AFTERS	HIP	TEA		RISE
	Feet	Inches	Feet	Inches	Foet	Inches		Little	Inches	Feet	Inches	Feet	Inches		Feet	Inches	Feet		Feet	Inches
		4		38			4		4		3 8			1/4		4		3		
1/2		2		3 4			1/2		1 2		3 4			1/2		9 16		3 4		
3/4		13 16		116			34		13 16		116			34		13		18		
	1-01/2	116	1-5%	17/16	3½	516		1-05	116	1-57	17/16	4	5 16		1-013	16	1-5%	17/16	4½	3 8
2	2-1	21/16	2-1011	27/8	7	9 16	2	2-15/16	21/8	$2 - 10\frac{3}{4}$	215	8	11	2	2-15	21/8	2-11=	215	9	3 4
3	3-12	31/8	4-4	45/16	101	78	3	3-115	3 3 16	4-45	43/8	1-0		3	3-27	336	4-411	43/8	1-12	11/8
4	4-2	43/16	5-95	53/4	1-2	13/16	4	4-25	44		513	1-4	15/16	4	4-34	41/4	5-101/4	57/8	1-6	11/2
5	5-21/2	5 3 16	7-25	74	1-51/2	17/16	5	5-34	54	<u> </u>	74	1-8	111	5	5-416	1	7-313	75/16	1-10=	17/8
6	6-3	61/4	8-8	811	1-9	13/4	6	6-37	65/16		83/4	2-0	2	6	6-47	676		83/4	2-3	21/4
ř	7-31	75	10-15	10 1/8	2-01	21/16	7	7-4%	73/8		103	2-4	25/16	7	7-53	7½	10-27	104	2-71/2	25/8
8	8-4	85				2 <u>5</u>	δ					2-8	211	8	-	89			3-0	3
9			12 11/15	1116			=	- 10	876		115	-		=	8-62			1 13		3\frac{3}{8}
	9-42	93	12-11=	-	2-7=	25/8	9	9-57	91/2		1-116	3-0	3	9	9-73	95		1-13/16	3-4=	
10	10-5	1076	14-51	1-276	2-11	215	10	10-6-	10%		1-2=	3-4	3 5 16	10		1016	14-7%	1-25	3-9	33/4
Щ	11-5½	1176	15-10=	1-37		3 3 16	Щ	11-78	115	15-1113	1-4	3-8	311	Щ	11-9	113		1-48	4-12	48
12	12-6	1-0=	17-315	1-5%	3-6	3 ½	=	12-713	1-05	17-54	1-57	4-0	4	12	12-918	1-013		1-5%	4-6	41/2
13	13-62		18-94		3-91		13	13-87		18-1016		4-4		13	13-10 \$		19-04		4-10 1/2	
14	14-7		20-2%		4-1		14	14-916		20-4 1/8		4-8		14	14-1176		20-513		5-3	
15	15-72		21-715		$4-4\frac{1}{2}$		15	15-93		21-9%		5-0		15	16-04		$21-11\frac{3}{8}$		5-7=	
12 16 18 20 24	" CENTE	RS 13"			Rise	5"	T	ABLE O	F SPAC	ING		D.	E 1/1	I -			NIC		ο.	11
		RS 21", RS 26"	2." /16."		Pitch		12	" CENTE	RS 133	16"	11/48	Rise Pitch 2		12	" CENTE	RS 137 RS 177 RS 201 RS 203 RS 263	16"	1/4	Rise Pitch i	<b>6</b> ": 26°34'
RUN	COMMO JACK R	RS 21" RS 26" N AND AFTERS	HIP VALI		Pitch	22°37'	12 16 18 24	" CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 133, RS 175, RS 1913 RS 22" RS 263 N AND AFTERS	/6" /8" /8" /8" /8"	AND	Pitch 2	24°37'	12 16 18 20 24	" CENTE " CENTE " CENTE " CENTE	DS 137	/16" /8" /8" /8"	AND		26°34′
RUN	COMMO JACK R	RS 21" RS 26" N AND	HIP VALI	AND EY Inches	Pitch	22°37'	12 16 18 20 24	" CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 133 RS 175 RS 1913 RS 22 " RS 263	/6" /8" /8" /8" /8"	AND EY Inches	Pitch 2	24°37'	12 16 18 20 24	" CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 137 RS 177 RS 201 RS 223 RS 261	16"  8"  8"  8"  3/16"  HIP	AND EY Inches	Pitch i	26°34'
RUN 1/4	COMMO JACK R	RS 21" RS 26" N AND AFTERS Inches	HIP VALI	AND EY Inches	Pitch	22°37'	12 16 18 20 24	" CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 133 RS 175 RS 1913 RS 263 N AND AFTERS Inches	/6" /8" /8" /8" /8"	Inches	Pitch 2	24°37'	12 16 18 20 24 RUN	" CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 137, RS 177 RS 201, RS 201, RS 2G 1, N AND AFTERS Inches	16"  8"  8"  8"  3/16"  HIP	AND EY Inches	Pitch :	26°34'
1/4 1/2	COMMO JACK R	RS 26" RS 26" N AND AFTERS Inches	HIP VALI	Inches	Pitch	22°37'	12 16 18 24 24 24 1/4	" CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 133 RS 175 RS 1915 RS 22" RS 263 N AND AFTERS Inches	/6" /8" /8" /8" /8"	Inches	Pitch 2	24°37'	12 16 18 20 24 RUN 1/4	" CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 137, RS 177, RS 201, RS 203, RS 2610 N AND AFTERS Inches	16"  8"  8"  8"  3/16"  HIP	Inches	Pitch :	26°34'
I/4	COMMO JACK R	RS 19 19 18 21 19 18 21 19 18 21 19 18 21 19 18 21 19 18 21 19 18 21 18	HIP VALI	AND LEY Inches 3 8 3 4	TOTAL Feet	22°37'	1/4 1/2 3/4	" CENTE " CENTE " CENTE COMMO JACK R. Feet	RS 133, RS 175, RS 191, RS 22, RS 263 N AND AFTERS Inches	/IG" ///////////////////////////////////	AND   EY   Inches   3   8   3   4   1   8	TOTAL Feet	RISE Inches	12 18 18 20 24 RUN 1/4 1/2 3/4	" CENTE " CENTE " CENTE CENTE COMMO JACK R	RS 137, RS 177, RS 201, RS 261, RS 261	/6"/8" 8"/8" 8" 8" VALI	AND EY Inches 3 8 4	Pitch :	26°34' RISE
1/4 1/2 3/4 1	COMMO JACK R Feet	RS 21", RS 26" N AND AFTERS Inches 14 9 16	HIP VALI	AND   EY   Inches   3   8   4   1   8   1   2	TOTAL Feet	RISE Inches	1/4 1/2 3/4	" CENTE" CENTE " CENTE " CENTE " CENTE " CENTE COMMO JACK R Feet	RS 133, RS 175, RS 175, RS 263, RS 263	//6" //6" //6" //6" //6" //6" //6" //6"	1   1   2   2   2   2   2   2   2   2	TOTAL Feet	RISE Inches	12 18 18 20 24 RUN 1/4 1/2 3/4	" CENTE" CENTE" CENTE" CENTE COMMO JACK R	RS 137, RS 177, RS 177, RS 203, RS 203	16" /8" /8" /8" /8" /16"  HIP /VALI	Inches	TOTAL Feet	26°34'
1/4 1/2 3/4 1 2	COMMO JACK R Feet	RS 21 "RS 26"  N AND AFTERS Inches  1 4 9 16 13 16 16 2 3 16	HIP VALIFEET   -5\frac{11}{16}  -5\frac{11}{3}	AND LEY Inches 3 8 4 1-8 1-12 2 15/16	TOTAL Feet	22°37'  RISE Inches	12 16 18 20 24 24 1/2 3/4 1 2	" CENTE" CENTE" CENTE" CENTE" CENTE" CENTE COMMO JACK R Feet	RS 133, RS 175, RS 175, RS 263, N AND AFTERS 5 21 Inches 13 16 18 8 2 3 16 2 3 16	16" (8" (8" (8" (8" (8" (8" (8" (8" (8" (8	Inches   3   8   3   4   1   8   1   2   2   3   3   3   3   4   1   5   5   5   5   5   5   5   5   5	TOTAL Feet  5½	24°37' . RISE   Inches	12 16 18 20 24 RUN 1/4 1/2 3/4	" CENTE " CENTE " CENTE " CENTE CENT	RS 137, RS 207, RS 208, RS 208, RS 26, RS 26	16" /8" /8" /8" /8" /9" HIP //AL! Feet	ND   EY   Inches   3 8   3 4   - 8   1- 2   3	TOTAL Feet  6 1-0	RISE Inches
1/4 1/2 3/4	COMMO JACK R Feet	RS 21 "RS 26"  N AND AFTERS  Inches  1 4 9 16 136 2 36 2 36 3 4	HIP VALUE Feet  1-51/6 2-113/8 4-51/6	AND EY Inches 3 8 1 1 2 15 16 16 16 16 16 16 16 16 16 16 16 16 16	Total Feet 5 10 1-3	22°37'  RISE Inches	1/4 1/2 3/4 1 2 3	" CENTE " CENT	RS 133, RS 1875 RS 1975 RS 1975 RS 1975 RS 1975 RS 263, RS 263	1-5 \frac{13}{16} \frac{13}{16	AND   EY   Inches   3   8   3   4   1   1   2   3   4   1   1   6   6   6   6   6   6   6   6	TOTAL   Feet	RISE Inches	12 16 18 20 24 1/4 1/2 3/4 1 2	CENTE CENTE COMMO JACK R Feet  1-17/16  2-213/16  3-44	RS 137, RS 223, RS 177, RS 223, RS 223, RS 26, RS 2	16" /8" /8" /8" /8" /16"  HIP /VALI	Inches	TOTAL Feet  6 1-0	26°34'  RISE Inches
1/4 1/2 3/4 1 2	COMMO JACK R Feet	RS 21 "RS 26" N AND AFTERS Inches 1 4 4 16 13 16 2 16 3 4 4 16 3 4 16	HIP   VALI   Feet     -5	AND LEY Inches 3 8 4 1 8 1 1 2 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1	Total Feet 5 10 1-3 1-8	22°37'  RISE Inches    16   14   116   16   16   16   16   16	1/4 1/2 3/4 1 2 3 4	" CENTE" CENTE" CENTE" CENTE" CENTE" CENTE COMMO JACK R Feet	RS 1335 RS 1718 RS 1718 RS 263 RS 263 N AND AFTERS Inches 14 16 18 216 316 476	1-5 \frac{13}{6} \frac{1}{6} \frac{13}{16} \frac{13}{16} \frac{1}{6} \frac{1}{16} \frac{13}{16} \frac{1}{16}	$\begin{array}{c c} \text{AND} \\ \text{EY} \\ \hline \\ \text{Inches} \\ \hline \\ \frac{3}{8} \\ \frac{3}{4} \\ \hline \\ \frac{1}{8} \\ \hline \\ \frac{1}{1} \\ \frac{1}{2} \\ \hline \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	TOTAL   Feet	24°37'  RISE Inches    16   15   16   18   16   16   16   16   16   16	12 18 20 24 RUN 1/4 1/2 3/4 1 2 3	" CENTE " CENTE " CENTE " CENTE CENT	RS 137, RS 223, RS 177, RS 223, RS 223, RS 26, RS 2	16" /8" /8" /8" /8" /9" HIP //AL! Feet	Inches	TOTAL Feet  6 1-0	26°34'  RISE Inches
1/4 1/2 3/4 1 2 3	COMMO JACK R Feet	RS 21 "RS 26" N AND AFTERS Inches 1 4 4 16 13 16 2 16 3 4 4 16 3 4 16	HIP VALUE Feet  1-51/6 2-113/8 4-51/6	AND LEY Inches 3 8 4 1 8 1 1 2 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1	Total Feet 5 10 1-3 1-8	22°37'  RISE Inches	1/4 1/2 3/4 1 2 3 4	" CENTE " CENT	RS 1335 RS 1911 RS 1911 RS 223 N AND AFTERS Inches 13 16 18 216 316 416 517	1-513/16 2-1111/16 4-51/2 5-113/16 7-53/16	Inches   3   8   3   4   1   8   1   2   2   3   4   1   6   6   5   1   6   6   6   7   1   6   6   7   1   6   6   7   1   6   6   7   1   6   6   7   1   6   6   7   1   6   7   1   6   7   1   6   7   1   6   7   1   6   7   1   6   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   7   1   6   7   7   7   7   7   7   7   7   7	TOTAL   Feet	24°37'  RISE Inches    16   15   16   18   18   18   18   18   18   18	12 18 20 24 RUN 1/4 1/2 3/4 1 2 3	CENTE CENTE COMMO JACK R Feet  1-17/16  2-213/16  3-44	RS 137, RS 26, RS 127, RS 20, RS 26,	16" (8" (8" (8") (8") (8") (8") (8") (8")	Inches   3   8   1   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   4   1   2   3   3   4   4   3   3   4   4   3   3	TOTAL Feet  6 1-0 1-6	26°34'  RISE Inches
1/4 1/2 3/4 1 2 3 4 5	-   2 - 2   3 - 3   4 - 4	RS 26" RS 26" N AND AFTERS 26" 166 2 36 3 4 4 56 5 76 5 76	HIP   VALI   Feet     -5	Inches   3   0   3   4   18   1   2   15   16   6   1   18   1   18   1   18   18	Total Feet 5 10 1-3 1-8 2-1	22°37'  RISE Inches    16   14   116   16   16   16   16   16	1/4 1/2 3/4 1 2 3/4 1 5	" CENTE" CENTE COMMO JACK R Feet  1-13/16 2-21/16 3-35/3	RS 1335 RS 1911 RS 1911 RS 223 N AND AFTERS Inches 13 16 18 216 316 416 517	1-513/16 2-1111/16 4-51/2 5-113/16 7-53/16	Inches   3   8   3   4   1   8   1   2   2   3   4   1   6   6   5   1   6   6   6   7   1   6   6   7   1   6   6   7   1   6   6   7   1   6   6   7   1   6   6   7   1   6   7   1   6   7   1   6   7   1   6   7   1   6   7   1   6   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   1   6   7   7   7   1   6   7   7   7   7   7   7   7   7   7	Total   Feet	24°37'  RISE   Inches	12 18 20 22 22 22 24 1 2 3 4 5	CENTE   CENT	RS 1377 RS 208 RS 208 R	1-6 3-0 4-6 6-0	Inches	TOTAL Feet  6 1-0 1-6 2-0	RISE Inches
1/4 1/2 3/4 1 2 3 4 5 6	1-1 2-2 3-3 4-4 5-5 6-6	25 26 " N AND AFTERS 26 " N AND AFTERS 26 " 14 4 9 16 13 16 16 16 16 16 16 16 16 16 16 16 16 16	1-516 2-113 4-516 5-103 7-476 8-1036	Inches   3   0   3   4   1   8   1   1   1   1   1   1   1   1	Total Feet 5 10 1-3 1-8 2-1 2-6	22°37'  RISE Inches  13 16 14 116 216 22 2	1/4 1/2 3/4 1 2 3 4 5 6	" CENTE" CENTE " CENTE	RS 13 5 6 8 8 8 9 1	1-513/16 1-513/16 2-111/16 4-52/2 5-113/8 7-53/6 8-11/16	1   1   2   3   4   1   6   6   6   6   6   6   6   6   6	TOTAL Feet  5½ 11 1-4½ 1-10 2-3½ 2-9	RISE Inches   13   13   13   16   2   3   4   2   4   2   4   2   4   4   4   4	12 16 18 20 24 1/2 3/4 1 2 3 4 5 6	CENTE   CENT	RS 1377 RS 208 RS 20	1-6 3-0 4-6 9-0	3 8 3 4 1 1 8 3 4 1 2 3 4 1 2 6 6 7 1 2 9	Feet  6 1-0 1-6 2-0 2-6 3-0	26°34'  RISE Inches  1 2 2 1 2 3
14 1/2 3/4 1 2 3 4 5 6 7	I-I 2-2 3-3 4-4 5-5 6-6 7-7	23 26 " N AND 26 16 16 16 16 16 16 16 16 16 16 16 16 16	1-516 2-113 4-516 5-103 7-476 8-103 10-37	Inches   3   3   4   1   8   1   1   1   1   1   1   1   1	5 10 1-3 1-8 2-1 2-6 2-11	22°37'  RISE Inches  13 13 16 14 116 216 216 215 215	1/4 1/2 3/4 1 2 3/4 1 5 6 7	CENTE CENTE COMMO JACK R Feet  1-13/166 2-27/16 3-35/8 4-4/13 5-6 6-7/16 7-8/16	RS 1335 RS 1375 RS 1791 RS 263 N ANDAFTERS 100 Inches 110 110 110 110 110 110 110 110 110 110	1-513/66 2-111/16 4-51/2 5-11/8 7-53/6 8-11/16 10-47/8	1   1   2   3   4   1   6   6   6   6   6   6   6   6   6	TOTAL Feet  5½ 11 1-4½ 1-10 2-3½ 2-9 3-2½	RISE Inches    Total   Total	RUN 1/4 1/2 3/4 1 2 3 4 5 6 7	CENTE   CENT	RS 1377 RS 2018 RS 201	1-6 3-0 4-6 6-0 7-6 9-0	38 38 1-2 3 4 -12 6 7-12 9 10-12	Feet  6 1-0 1-6 2-0 2-6 3-0 3-6	26°34'  RISE (Inches)  1 2 2 1 2 3 3 1 2
14 1/2 3/4 1 2 3 4 5 6 7 8	I-I 2-2 3-3 4-4 5-5 6-6 7-7 8-8	2 26 "  NATTERS 26 "  NATTERS 26 "  AFTERS 2	1-516 2-113 4-516 5-1034 7-416 8-1036 10-3 8 11-96	1   1   1   1   1   1   1   1   1   1	5 10 1-3 1-8 2-1 2-6 2-11 3-4	22°37'  RISE Inches  136 137 14 116 216 216 356	12 15 16 17 8 12 3 4 5 6 7 8	CENTE   CENT	RS 13 <sup>3</sup> 5 <sup>6</sup> 7878 13 <sup>3</sup> 5 <sup>6</sup> 7878 26 <sup>3</sup> 3 13 <sup>3</sup> 6 15 <sup>4</sup> 78 26 <sup>3</sup> 3 16 <sup>4</sup> 76 26 <sup>3</sup> 76 26	1-513/66"  1-513/66"  2-111/16  4-52/5-11/3/8  7-53/66  8-11-10/3/4  11-10/3/4	Inches   3   3   4   1   1   8   1   2   2   3   3   4   1   1   1   1   2   3   3   4   1   1   1   1   1   1   1   1   1	Total Feet  5½   11	RISE Inches   16   15   16   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   17	12 16 18 20 22 24 1 2 3 4 5 6 7 8	CENTE   CENT	RS 1377 RS 268 RS 268 R	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0	38 1-2 3 3 4-18 1-2 3 3 4-12 6 7-12 9 10-12	Feet  6 1-0 1-6 2-0 2-6 3-0 3-6 4-0	26°34'  RISE
1/4 1/2 3/4 1 2 3 4 5 6 7 8	1-1 2-2 3-3 4-4 5-5 6-6 7-7 8-8 9-9	2 3 6 7 16 2 3 16 3 14 4 5 6 5 7 16 6 12 7 9 6 8 11 6 9 13 4 14 16 6 15 16 6 12 7 9 16 8 11 6 16 9 13 4 16 6 12 7 9 16 8 11 7 9 10 8 11 7 9 10	7-416 8-1036 1-916 1-916 13-34	Inches   3   3   4   1   8   1   1   2   15   16   6   1   13   16   1   1   16   1   1   1   1   1	5 10 1-3 1-8 2-1 2-6 2-11 3-4 3-9	22°37'  RISE Inches  116 114 116 215 215 316 334	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9	CENTER   C	13   13   13   13   13   13   13   13	1-5 13 6 7-5 16 8-11 16 8-11 16 13-4 13-4 16	1   1   1   1   1   1   1   1   1   1	TOTAL Feet  5½ 11 1-4½ 1-10 2-3½ 2-9 3-2½ 3-8 4-1½	24°37'  RISE Inches    16   18   18   18   18   18   18   18	12 16 18 20 22 22 22 22 22 22 22 22 22 22 22 22	CENTER   C	RS 1377 RS 268 RS 209 AND AND AFTERS 11 RChes 12 RS 268 RS	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0	3 8 3 4 1 1 8 3 4 1 2 8 6 7 1 2 8 9 1 1 - 0 1 - 1 2 8	Feet  6 1-0 1-6 2-0 2-6 3-0 3-6 4-0 4-6	26°34'  RISE Inches  1 1 2 2 2 3 3 1 2 4 4 2 2
1/4 1/2 3/4 1 2 3 4 5 6 7 8 8 9	I-I 2-2 3-3 4-4 5-5 6-6 7-7 8-8 9-9	23 26 " N AND 26 16 16 16 16 16 16 16 16 16 16 16 16 16	1-51/6 2-11/8 4-51/6 5-10/8 7-47/6 8-10/8 10-37/8 11-91/6 13-31/4 14-81/6	Inches   3   3   4   1   2   15   16   16   16   16   17   16   17   17	5 10 1-3 1-8 2-1 2-6 2-11 3-4 3-9 4-2	22°37'  RISE Inches  130 131 16 14 1116 216 216 315 334 436	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9	CENTE   CENT	RS 13 13 15 15 15 15 15 15 15 15 15 15 15 15 15	1-513/66 2-111/66 2-111/66 4-51/2 5-11/8 7-51/8 8-11/16 10-47/8 11-103/4 13-47/6 14-103/8	The state   The state	5½ 11 1-4½ 1-10 2-3½ 2-9 3-2½ 3-8 4-1½ 4-7	RISE Inches   16   15   16   16   16   16   17   16   17   16   17   16   17   16   17   16   17   17	12 16 18 20 22 22 22 22 22 22 22 22 22 22 22 22	CENTE   CENT	RS 1377 RS 268 RS 209 R	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0 13-6	$\begin{array}{c c} \text{AND} \\ \text{-EY} \\ \text{Inches} \\ \hline & 3 \\ \hline & 4 \\ \hline &   \frac{1}{8} \\ \hline & 4 \\ \hline &   \frac{1}{2} \\ \hline & 6 \\ \hline & 7 \\ \hline &   2 \\ \hline & 9 \\ \hline &   1 \\ \hline & 0 \\ \hline &   -1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline \\ \hline &   1 \\ \hline &   1 \\ \hline \\ \hline &   1 \\ \hline \\ \hline \\ \hline \end{tabular}$	Feet  6 1-0 1-6 2-0 2-6 3-0 3-6 4-0 4-6 5-0	26°34'  RISE Inches $\frac{1}{2}$
14 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11	1-1 2-2 3-3 4-4 5-5 6-6 7-7 8-8 9-9 10-10	23 26 "  NATERS 26 "  NATERS 26 "  NATERS 26 "  1 16 2 3 6 3 6 4 6 6 7 7 16 6 7 7 16 6 7 7 16 6 7 16 7 16 6 7 1	1-516 2-113 4-516 5-1036 8-1036 10-378 11-916 13-31/14-815 14-815 16-25	1   2   1   1   2   3   8   1   2   1   1   1   1   1   1   1   1	5 10 1-3 1-8 2-1 2-6 2-11 3-4 3-9 4-2 4-7	22°37'  RISE Inches  136 136 14 116 216 216 356 334 436 436 436 436	12 1 1 2 2 3 4 1 2 3 4 5 6 7 8 9 10 11 1	CENTE   CENT	RS 13 <sup>3</sup> 5 <sup>6</sup> 78788 13 <sup>1</sup> 6 <sup>1</sup> 88 23 <sup>1</sup>	1-513/66 2-111/16 4-51/2 5-11/8 11-103/4 13-41/6 14-103/8 16-41/4	Inches   3   3   4   1   8   1   2   2   3   3   4   4   6   6   6   6   6   6   6   6	Total   Feet	RISE   Inches   7   16   15   16   16   16   16   16   16	12 18 18 18 18 18 18 18 18 18 18 18 18 18	CENTER   C	RS 1377 RS 208 RS 208 RS 208 Inches 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0 13-6 15-0	$\begin{array}{c c} AND \\ EY \\ \hline Inches \\ \hline 38 \\ \hline -12 \\ \hline 38 \\ \hline -12 \\ \hline 38 \\ \hline -12 \\ \hline -13 \\ \hline -14 \\ \hline -12 \\ \hline -14 \\ \hline -14 \\ \hline -14 \\ \hline -14 \\ \hline -15 \\ \hline $	Feet  6 1-0 1-6 2-0 2-6 3-0 3-6 4-0 4-6 5-0 5-6	26°34'  RISE [Inches] $\frac{1}{2}$ $2\frac{1}{2}$ $3\frac{1}{2}$ $4\frac{1}{2}$ $5\frac{1}{2}$
14   1/2   3   4   5   6   7   8   9   10   11   11   11   11   11   11	1-1 2-2 3-3 4-4 5-5 6-6 7-7 8-8 9-9 10-10 11-11 13-0	23 26"  NATTERS Inches  14  13 16  23 16  31 45 16  51 61 27 16 61 27 16 61 16 16 16 16 16 16 16 16 16 16 16	1-516 2-113 4-516 5-1034 7-416 8-1036 10-37 11-916 13-314 14-815 16-28 17-816 17-816	Inches   3   3   4   1   2   15   16   16   16   16   17   16   17   17	5 10 1-3 1-8 2-1 2-6 2-11 3-4 3-9 4-2 4-7 5-0	22°37'  RISE Inches  116 114 116 2156 315 316 316 416 5	12 34 1 2 3 4 5 6 7 8 9 10 11 12	CENTER   C	RS 13 <sup>3</sup> 5 <sup>6</sup> 78788 13 <sup>1</sup> 6 <sup>1</sup> 885 26 <sup>3</sup> 3 16 <sup>1</sup> 88 2 <sup>3</sup> 16 <sup>3</sup> 88 2 <sup>3</sup>	1-5 13 6 7-5 16 8-11 16 8-11 16 13 4 13 -4 16 14 17-10 16 16 17-10 16	The state   The state	Total   Feet	24°37'  RISE Inches  Inches  13 18 18 18 18 18 18 18 18 18 18 18 18 18	12 1 1 2 3 4 5 6 7 8 9 10 11 12	CENTER   C	RS   17   17   17   17   17   17   17   1	1-6 3-0 4-6 6-0 7-6 12-0 13-6 15-0 16-6 18-0	$\begin{array}{c c} \text{AND} \\ \text{-EY} \\ \text{Inches} \\ \hline & 3 \\ \hline & 4 \\ \hline &   \frac{1}{8} \\ \hline & 4 \\ \hline &   \frac{1}{2} \\ \hline & 6 \\ \hline & 7 \\ \hline &   2 \\ \hline & 9 \\ \hline &   1 \\ \hline & 0 \\ \hline &   -1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline &   1 \\ \hline &   2 \\ \hline &   1 \\ \hline \\ \hline &   1 \\ \hline &   1 \\ \hline \\ \hline &   1 \\ \hline \\ \hline \\ \hline \end{tabular}$	Feet  6 1-0 1-6 2-0 2-6 3-0 3-6 4-0 4-6 5-0 5-6 6-0	26°34'  RISE (Inches)
14   1/2   3   4   5   6   7   1   1   1   1   1   1   1   1   1	I-I 2-2 3-3 4-4 5-5 6-6 7-7 8-8 9-9 10-10 11-11 13-0 14-1	23 26 " N ARTERS 21 16 16 16 16 16 16 16 16 16 16 16 16 16	7-416 8-1036 1-516 2-1138 4-516 8-1036 10-378 11-916 13-314 14-816 16-25 17-816 17-816 19-2	1   2   1   1   2   3   8   1   2   1   1   1   1   1   1   1   1	5 10 1-3 1-8 2-1 2-6 2-11 3-4 3-9 4-2 4-7 5-0 5-5	22°37'  RISE Inches  136 14 116 216 216 356 344 466 496 5	12 13 4 5 6 7 8 9 10 11 12 13	-13   GENTE   CENTE	3   3   5   6   7   1   6   6   6   6   6   6   6   6   6	1-513/6 2-1116 2-1116 10-47/8 11-103/4 13-47/6 14-103/6 17-1016 19-31/6 19-31/6	Inches   3   3   4   1   8   1   2   2   3   3   4   4   6   6   6   6   6   6   6   6	TOTAL Feet  5½ 11 1-4½ 1-10 2-3½ 2-9 3-2½ 3-8 4-1½ 4-7 5-0½ 5-6 5-11½	24°37'  RISE Inches  Inches  13 18 18 18 18 18 18 18 18 18 18 18 18 18	RUN 1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13	Center   C	137   137	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0 13-6 18-0 19-6	$\begin{array}{c c} AND \\ EY \\ \hline Inches \\ \hline 38 \\ \hline -12 \\ \hline 38 \\ \hline -12 \\ \hline 38 \\ \hline -12 \\ \hline -13 \\ \hline -14 \\ \hline -12 \\ \hline -14 \\ \hline -14 \\ \hline -14 \\ \hline -14 \\ \hline -15 \\ \hline $	Feet  6 1-0 1-6 2-0 2-6 3-0 3-6 4-0 4-6 5-0 5-6 6-0 6-6	26°34'  RISE Inches $\frac{1}{2}$
14 1/2 3/4 1 2 3 4 5 6 7 8 8 9 10 11 11 11 11 11 11 11 11 11 11 11 11	1-1 2-2 3-3 4-4 5-5 6-6 7-7 8-8 9-9 10-10 11-11 13-0	23 26 "  NATTERS 26 "  NATTERS 26 "  NATTERS 26 "  NATTERS 26 "  1	1-516 2-113 4-516 5-1034 7-416 8-1036 10-37 11-916 13-314 14-815 16-28 17-816 17-816	1   1   1   1   1   1   1   1   1   1	5 10 1-3 1-8 2-1 2-6 2-11 3-4 3-9 4-2 4-7 5-0	22°37'  RISE Inches  130 131 16 14 1116 216 356 334 4366 496 5	12 13 4 5 6 7 8 9 10 11 12 13 14	CENTER   C	RS 13 13 15 15 15 15 15 15 15 15 15 15 15 15 15	1-5 13 6 7-5 16 8-11 16 8-11 16 13 4 13 -4 16 14 17-10 16 16 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17-10 17	Inches   3   3   4   1   8   1   2   2   3   3   4   4   6   6   6   6   6   6   6   6	Total   Feet	24°37'  RISE Inches  Inches  13 18 18 18 18 18 18 18 18 18 18 18 18 18	12   13   14   12   13   14   14   15   15   16   17   18   19   19   19   19   19   19   19	CENTER   C	1770   1770	1-6 3-0 4-6 6-0 7-6 12-0 13-6 15-0 16-6 18-0	$\begin{array}{c c} AND \\ EY \\ \hline Inches \\ \hline 38 \\ \hline -12 \\ \hline 38 \\ \hline -12 \\ \hline 38 \\ \hline -12 \\ \hline -13 \\ \hline -14 \\ \hline -12 \\ \hline -14 \\ \hline -14 \\ \hline -14 \\ \hline -14 \\ \hline -15 \\ \hline $	Feet  6 1-0 1-6 2-0 2-6 3-0 3-6 4-0 4-6 5-0 5-6 6-0	26°34'  RISE Inches

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T# 12 16 18 20 24	CENTE CENTE	SPACII RS 13 5/ RS 18 3/ RS 20 7/ RS 22 3/ RS 27 5/	8"	<sup>13</sup> /48 F	Rise Pitch 2		TA	BLE OF CENTER CENTER CENTER	SPACI	NG		Rise Pitch 3	7"	16	CENTE	RS 18 3	16"	15/48	Rise Pitch 3	
	COMMO	N AND AFTERS	HIP /	ND EY	TOTAL	RISE		COMMO	I AND	HIP A	EY	TOTAL	RISE	DIIM	COMMO JACK R	AFTERS	HIP A	EY	TOTAL	
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9	10-213		-	1-15	4-101	478	9	10-516	107	13-91	1-13/4	5-3	54	9	10-73	-	13-11	1-15	5-7년	E
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14	15 111	+	21-27		7-7		حصب	16-21		21-5		8-2		=	16-6 <del>8</del>		21-73		8-9	
15	-	-	22-85		8-12		15	17-43		22-113		8-9		15	17-84		23-25		9-44	
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UN	JACK R	AFTERS	VAL			RISE	RUN	JACK R	AFTERS Inches	VAL	EY	Feet	Inches	RUN	JACK R	AFTERS Inches	VAL	Inches	Feet	
	Feet	Inches		Inches 3/8	FEET	Inches	1/4	Fee	5		3/8	FCCI	III ACTUES	1/4	7 6 6 1	5		7 16		
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1/2 3	1-27 2-48 3-74	15 16 16 27 27 35 8	$  -6\frac{3}{4} $ $  3 - 1  \frac{1}{2} $ $  4 - 8\frac{5}{16} $	3 ± 4 !! 6	8	15	2	2-5%	276 316	3-2 4-815	3 <sup>3</sup> / <sub>16</sub> 4 <sup>3</sup> / <sub>4</sub>	1-5 2-1½	2 \frac{1}{16} 2 \frac{13}{16}	3	3-9 5-0	3 <sup>3</sup> / <sub>4</sub>	4-9\frac{5}{8} 6-4\frac{13}{16}	413 67 67	2-3	
2 3 4	1-27	$ \begin{array}{c c}  & 15 \\ \hline  & 16 \\ \hline  & 18 \\ \hline  & 27 \\ \hline  & 3 \\ \hline  & 3 \\ \hline  & 4 \\ \hline  & 4 \\ \hline  & 4 \\ \hline  & 16 \\ \hline \end{array} $	$  -6\frac{3}{4} $ $  3 - 1  \frac{1}{2} $ $  4 - 8\frac{5}{16} $	196 3 1/8 4 11/6 6 1/4	8 1-4 2-0 2-8	1 <u>5</u> 2	2 3 4	2-576 3-88	216 316 415 68	3-2 4-8\frac{15}{16} 6-3\frac{15}{16} 7-10\frac{15}{16}	3 <sup>3</sup> / <sub>16</sub> 4 <sup>3</sup> / <sub>4</sub> 6 <sup>5</sup> / <sub>16</sub> 7 <sup>15</sup> / <sub>16</sub>	1-5 2-1½ 2-10	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 4 5	3-9 5-0 6-3	3 <sup>3</sup> / <sub>4</sub> 5 6 <sup>1</sup> / <sub>4</sub>	4-9\frac{5}{8} 6-4\frac{13}{16} 8-0\frac{1}{16}	4 <sup>13</sup> / <sub>16</sub> 6 <sup>7</sup> / <sub>16</sub> 8	2-3 3-0 3-9	
2 3 4 5	1-27/6 2-48/8 3-7/4 4-9/16 6-0/8	15 16 13 16 27 16 35 416 416	$ \begin{vmatrix} 1 - 6\frac{3}{4} \\ 3 - 1\frac{1}{2} \\ 4 - 8\frac{5}{16} \\ 6 - 3\frac{1}{16} \\ 7 - 9\frac{13}{16} \end{vmatrix} $	186 38 416 64 713	8 1-4 2-0 2-8 3-4	15/6 2 21/6	2 3 4	2-516 3-88 4-1013 6-12 7-44	276 311 415 68 738	3-2 4-8 <sup>15</sup> 6-3 <sup>15</sup>	3 <sup>3</sup> / <sub>16</sub> 4 <sup>3</sup> / <sub>4</sub> 6 <sup>5</sup> / <sub>16</sub> 7 <sup>15</sup> / <sub>16</sub>	$   \begin{array}{c c}     1-5 \\     2-1\frac{1}{2} \\     2-10 \\     3-6\frac{1}{2} \\     4-3   \end{array} $	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 4 5 6	3-9 5-0 6-3 7-6	3 <sup>3</sup> / <sub>4</sub> 5 6 <sup>1</sup> / <sub>4</sub> 7 <sup>1</sup> / <sub>2</sub>	4-9\\\\ 6-4\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	413 676 8 98	2-3 3-0 3-9 4-6	
2 3 4 5	1-27/8 2-47/8 3-71/4 4-91/6	15 16 13 116 27 16 38 413 413 6	$ \begin{vmatrix} 1 - 6\frac{3}{4} \\ 3 - 1\frac{1}{2} \\ 4 - 8\frac{5}{16} \\ 6 - 3\frac{1}{16} \\ 7 - 9\frac{13}{16} \end{vmatrix} $	196 3-8 4-16 6-4 7-13 9-3 8	8 1-4 2-0 2-8 3-4 4-0	15/16 2 211/6 35/16 4 411/16	2 3 4 5 6 7	2-516 3-88 4-1013 6-12 7-44 8-615 8-616	21/6 31/6 41/5 61/8 73/8 81/6	$   \begin{array}{r}     3-2 \\     4-8_{\overline{16}}^{15} \\     6-3_{\overline{16}}^{15} \\     7-10_{\overline{16}}^{15} \\     9-5_{\overline{8}}^{-3} \\     11-0_{\overline{8}}^{-7} \\   \end{array} $	3 16 4 3 4 6 16 7 15 9 2	$   \begin{array}{c c}     1-5 \\     2-1\frac{1}{2} \\     2-10 \\     3-6\frac{1}{2} \\     4-3 \\     4-11\frac{1}{2}   \end{array} $	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 4 5 6	3-9 5-0 6-3 7-6 8-9	3 <sup>3</sup> / <sub>4</sub> 5 6 <sup>1</sup> / <sub>4</sub> 7 <sup>1</sup> / <sub>2</sub> 8 <sup>3</sup> / <sub>4</sub>	4-9\\\ 6-4\\\\ 8-0\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	4 13 16 8 8 9 5 8 1 1 3 16	2-3 3-0 3-9 4-6 5-3	
14/23412345678	1-276 2-478 3-74 4-916 6-08	15 16 13 16 16 16 16 16 16 16 16 16 16 16 16 16	$ \begin{vmatrix} 1-6\frac{3}{4} \\ 3-1\frac{1}{2} \end{vmatrix} $ $ 4-8\frac{5}{16} $ $ 6-3\frac{1}{16} $ $ 7-9\frac{13}{16} $ $ 9-4\frac{1}{16} $ $ 10-11\frac{5}{16} $ $ 12-6\frac{1}{8} $	196 3 = 3 = 4 = 6 = 4 = 6 = 4 = 7 = 6 = 4 = 7 = 6 = 10 = 10 = 10 = 10 = 10 = 10 = 10	8 1-4 2-0 2-8 3-4 4-0	15/16 2 211/16 35/16 4	2 3 4 5 6 7 8	2-516 3-88 4-1013 6-12 7-414 8-616 9-98	21/6 31/6 41/5 61/8 73/8 81/6	$ 3-2 $ $ 4-8\frac{15}{16} $ $ 6-3\frac{15}{16} $ $ 7-10\frac{15}{16} $ $ 9-5\frac{7}{8} $ $ 11-0\frac{7}{8} $ $ 12-7\frac{7}{8} $	316 434 656 715 92 1116 1-016	$   \begin{array}{c}     1-5 \\     2-1\frac{1}{2} \\     2-10 \\     3-6\frac{1}{2} \\     4-3 \\     4-11\frac{1}{2} \\     5-8   \end{array} $	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 4 5 6 7 8	3-9 5-0 6-3 7-6 8-9 10-0	3 <sup>3</sup> / <sub>4</sub> 5 6 <sup>1</sup> / <sub>4</sub> 7 <sup>1</sup> / <sub>2</sub> 8 <sup>3</sup> / <sub>4</sub> 10	4-9\\\ 6-4\\\\ 8-0\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	413 67 67 8 98 113 1-013	2-3 3-0 3-9 4-6 5-3 6-0	
234567	1-27/16 2-48/3-71/4 4-91/6 6-08/7-29/8	15 16 13 16 16 16 16 16 16 16 16 16 16 16 16 16	$ \begin{vmatrix} 1-6\frac{3}{4} \\ 3- \frac{1}{2} \\ 4-8\frac{5}{16} \\ 6-3\frac{1}{16} \\ 7-9\frac{13}{16} \\ 9-4\frac{9}{16} \\ 10-11\frac{5}{16} \\ 12-6\frac{1}{8} \\ 14-0\frac{7}{8} \end{vmatrix} $	19 19 16 16 16 16 16 16 16 16 16 16 16 16 16	8 1-4 2-0 2-8 3-4 4-0 4-8	\frac{5}{16}   \fra	2 3 4 5 6 7 8 9	$ \begin{array}{c} 2 - 5\frac{1}{16} \\ 3 - 8\frac{1}{8} \\ 4 - 10\frac{13}{16} \\ 6 - 1\frac{1}{2} \\ 7 - 4\frac{1}{4} \\ 8 - 6\frac{15}{16} \\ 9 - 9\frac{5}{8} \\ 11 - 0\frac{3}{8} \end{array} $	2 <sup>7</sup> / <sub>16</sub> 3 <sup>11</sup> / <sub>16</sub> 4 <sup>15</sup> / <sub>16</sub> 6 <sup>1</sup> / <sub>8</sub> 7 <sup>3</sup> / <sub>8</sub> 8 <sup>9</sup> / <sub>16</sub> 11	$\begin{array}{c} 3 - 2 \\ 4 - 8 \frac{15}{16} \\ 6 - 3 \frac{15}{16} \\ 7 - 10 \frac{15}{16} \\ 9 - 5 \frac{7}{8} \\ 11 - 0 \frac{7}{8} \\ 12 - 7 \frac{7}{16} \\ 14 - 2 \frac{13}{16} \end{array}$	3 16 4 3 4 6 16 7 15 10 11 16 1 - 0 11 1 - 2 14	$   \begin{array}{c}     1-5 \\     2-1\frac{1}{2} \\     2-10 \\     3-6\frac{1}{2} \\     4-3 \\     4-11\frac{1}{2} \\     5-8 \\     6-4\frac{1}{2}   \end{array} $	$ \begin{array}{c c} 1\frac{1}{16} \\ 2\frac{1}{8} \\ 2\frac{13}{16} \\ 3\frac{9}{16} \\ 4\frac{1}{4} \\ 4\frac{15}{16} \\ 6\frac{3}{8} \end{array} $	3 4 5 6 7 8 9	3-9 5-0 6-3 7-6 8-9 10-0 11-3	3 <sup>3</sup> / <sub>4</sub> 5 6 <sup>1</sup> / <sub>4</sub> 7 <sup>1</sup> / <sub>2</sub> 8 <sup>3</sup> / <sub>4</sub> 10 11 <sup>1</sup> / <sub>4</sub>	4-9\frac{8}{8} 6-4\frac{13}{16} 8-0\frac{1}{16} 9-7\frac{1}{4} 11-2\frac{1}{16} 12-9\frac{11}{16} 14-4\frac{1}{8}	413 67 67 8 9 5 113 1-013 1-27 1-27	2-3 3-0 3-9 4-6 5-3 6-0 6-9	
23456789	1-27/6 2-48/8 3-7/4 4-91/6 6-08/8 7-29/8 8-41/6 9-7/8 10-91/6 12-04	15 16 16 16 16 16 16 16 16 16 16 16 16 16	$ \begin{vmatrix} 1-6\frac{3}{4} \\ 3- \frac{1}{2} \\ 4-8\frac{5}{16} \\ 6-3\frac{1}{16} \\ 7-9\frac{13}{16} \\ 9-4\frac{9}{16} \\ 10-11\frac{5}{16} \\ 12-6\frac{1}{8} \\ 14-0\frac{7}{8} \\ 15-7\frac{5}{8} \end{vmatrix} $	16   16   3   8   4   16   6   4   16   6   4   16   6   16   1	8 1-4 2-0 2-8 3-4 4-0 4-8 5-4	$ \begin{array}{c c}  & 1 \\ \hline 5 \\ \hline 6 \\ 6 \\ \hline 6 \\ \hline 6 \end{array} $	2 3 4 5 6 7 8 9	2-516 3-88 4-1016 6-12 7-44 8-616 9-98 11-03 11-03 11-216	$ \begin{array}{c} 2\frac{7}{16} \\ 3\frac{11}{16} \\ 4\frac{15}{16} \\ 6\frac{1}{8} \\ 7\frac{3}{8} \\ 8\frac{9}{16} \\ 9\frac{13}{16} \\ 11 \\ 1-0\frac{1}{4} \end{array} $	$3-2$ $4-8\frac{15}{16}$ $6-3\frac{15}{16}$ $7-10\frac{15}{16}$ $9-5\frac{7}{8}$ $11-0\frac{7}{8}$ $12-7\frac{7}{8}$ $14-2\frac{13}{16}$ $15-9\frac{13}{16}$	3 16 4 3 4 6 5 16 7 15 6 9 2 11 16 1 - 0 11 6 1 - 2 1 4 1 - 3 13 13 13	$   \begin{array}{c}     1-5 \\     2-1\frac{1}{2} \\     2-10 \\     3-6\frac{1}{2} \\     4-3 \\     4-11\frac{1}{2} \\     5-8 \\     6-4\frac{1}{2} \\     7-1   \end{array} $	$ \begin{array}{c c} 1\frac{1}{16} \\ 2\frac{1}{8} \\ 2\frac{13}{16} \\ 3\frac{9}{16} \\ 4\frac{1}{4} \\ 4\frac{15}{16} \\ 6\frac{3}{8} \\ 7\frac{1}{16} \\ \end{array} $	3 4 5 6 7 8 9	3-9 5-0 6-3 7-6 8-9 10-0 11-3	$ \begin{array}{c} 3\frac{3}{4} \\ 5 \\ 6\frac{1}{4} \\ 7\frac{1}{2} \\ 8\frac{3}{4} \\ 10 \\ 11\frac{1}{4} \\ 1-0\frac{1}{2} \end{array} $	$\begin{array}{c} 4 - 9\frac{5}{8} \\ 6 - 4\frac{13}{16} \\ 8 - 0\frac{1}{16} \\ 9 - 7\frac{1}{4} \\ 11 - 2\frac{7}{16} \\ 12 - 9\frac{11}{16} \\ 14 - 4\frac{7}{8} \\ 16 - 0\frac{1}{8} \end{array}$	4   3   6   6   7   6   6   7   6   6   6   7   6   6	2-3 3-0 3-9 4-6 5-3 6-0 6-9 7-6	
23456789	1-27/8 2-48/8 3-74/4-91/6 6-08/8 7-27/8 8-41/6 9-78/10-91/10-91/10-10-10-10-10-10-10-10-10-10-10-10-10-1	15 16 16 16 16 16 16 16 16 16 16 16 16 16	$\begin{array}{c}  -6\frac{3}{4}\\ 3- \frac{1}{2}\\ 4-8\frac{5}{6}\\ 6-3\frac{1}{6}\\ 7-9\frac{1}{36}\\ 9-4\frac{7}{6}\\  0- 1\frac{5}{6}\\  2-6\frac{1}{8}\\  4-0\frac{7}{8}\\  5-7\frac{5}{8}\\  7-2\frac{3}{8}\\ \end{array}$	16 3 18 4 116 6 4 7 13 9 38 10 15 1 - 0 12 1 - 3 18 1 - 3 18 1 - 5 16	8 1-4 2-0 2-8 3-4 4-0 4-8 5-4 6-0	15   2   2   16   3   5   6   6   16   6   7   5   6   7   6	2 3 4 5 6 7 8 9 10	2-516 3-818 4-1013 6-12 7-414 8-615 8-616 9-95 11-03 112-316 13-53	$ \begin{array}{c} 2\frac{7}{16} \\ 3\frac{116}{16} \\ 4\frac{15}{16} \\ 6\frac{1}{8} \\ 7\frac{3}{8} \\ 8\frac{9}{16} \\ 9\frac{13}{16} \\ 11 \\ 1-0\frac{1}{4} \\ 1-1\frac{1}{2} \end{array} $	$3-2$ $4-8\frac{15}{16}$ $6-3\frac{15}{16}$ $7-10\frac{15}{16}$ $9-5\frac{1}{8}$ $11-0\frac{1}{8}$ $12-7\frac{1}{8}$ $14-2\frac{13}{16}$ $15-9\frac{13}{16}$ $17-4\frac{13}{16}$	3 16 4 3 4 6 5 6 7 15 6 9 2 11 16 1 - 0 16 1 - 2 14 1 - 3 13 16 1 - 5 8	$   \begin{array}{c}       1-5 \\       2-1\frac{1}{2} \\       2-10 \\       3-6\frac{1}{2} \\       4-3 \\       4-11\frac{1}{2} \\       5-8 \\       6-4\frac{1}{2} \\       7-1 \\       7-9\frac{1}{2}   \end{array} $	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 4 5 6 7 8 8 9 9	3-9 5-0 6-3 7-6 8-9 10-0 11-3 12-6 13-9	3 <sup>3</sup> / <sub>4</sub> 5 6 <sup>1</sup> / <sub>4</sub> 7 <sup>1</sup> / <sub>2</sub> 8 <sup>3</sup> / <sub>4</sub> 10 11 <sup>1</sup> / <sub>4</sub> 1-0 <sup>1</sup> / <sub>2</sub> 1-1 <sup>3</sup> / <sub>4</sub>	4-9\frac{5}{8} 6-4\frac{13}{6} 8-0\frac{1}{6} 9-7\frac{1}{4} 11-2\frac{7}{16} 12-9\frac{11}{16} 14-4\frac{13}{8} 16-0\frac{1}{8} 17-7\frac{16}{16}	$\begin{array}{c} 4\frac{13}{16} \\ 6\frac{7}{16} \\ 8 \\ 9\frac{8}{8} \\ 11\frac{3}{16} \\ 1-0\frac{13}{16} \\ 1-2\frac{7}{16} \\ 1-4 \\ 1-5\frac{5}{8} \end{array}$	2-3 3-0 3-9 4-6 5-3 6-0 6-9 7-6 8-3	
23456789	1-27/6 2-48/8 3-7/4 4-91/6 6-08/8 7-29/8 8-41/6 9-7/8 10-91/6 12-04	15 16 16 16 16 16 16 16 16 16 16 16 16 16	$\begin{array}{c}   -6\frac{3}{4}\\ 3 -   \frac{1}{2}\\ 4 - 8\frac{1}{6}\\ 6 - 3\frac{1}{6}\\ 6 - 3\frac{1}{6}\\ 7 - 9\frac{13}{6}\\ 9 - 4\frac{9}{16}\\   0 - 1 \frac{5}{6}\\   12 - 6\frac{1}{8}\\   14 - 0\frac{7}{8}\\   15 - 7\frac{5}{8}\\   17 - 2\frac{3}{8}\\   18 - 9\frac{1}{8}\\ \end{array}$	116 3 8 4 116 6 4 116 6 1 1 1 1 1 1 1 1 1 1 1 1	8 1-4 2-0 2-8 3-4 4-0 4-8 5-4 6-0 6-8	15   2   2   16   3   5   6   6   16   6   7   5   6   7   6	2 3 4 5 6 7 8 9 10 11 12	2-516 3-88 4-1016 6-12 7-44 8-615 9-98 11-03 12-316 13-53 14-82	$ \begin{array}{c} 2\frac{7}{16} \\ 3\frac{116}{16} \\ 4\frac{15}{16} \\ 6\frac{1}{8} \\ 7\frac{3}{8} \\ 9\frac{13}{16} \\ 11 \\ 1-0\frac{1}{4} \\ 1-2\frac{11}{16} \\ 1-2\frac{11}{16} \end{array} $	3-2 4-8\frac{15}{66} 6-3\frac{15}{66} 7-10\frac{15}{66} 9-5\frac{7}{8} 11-0\frac{7}{8} 12-7\frac{7}{8} 14-2\frac{13}{66} 15-9\frac{13}{16} 17-4\frac{13}{16} 18-1\frac{3}{4}	3 16 4 3 4 4 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	$   \begin{array}{c}     1-5 \\     2-1\frac{1}{2} \\     2-10 \\     3-6\frac{1}{2} \\     4-3 \\     4-11\frac{1}{2} \\     5-8 \\     6-4\frac{1}{2} \\     7-1 \\     7-9\frac{1}{2} \\     8-6   \end{array} $	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 4 5 6 7 8 8 9 9 10 11 12	3-9 5-0 6-3 7-6 8-9 10-0 11-3 12-6 13-9 15-0	$ \begin{array}{c} 3\frac{3}{4} \\ 5 \\ 6\frac{1}{4} \\ 7\frac{1}{2} \\ 8\frac{3}{4} \\ 10 \\ 11\frac{1}{4} \\ 1-0\frac{1}{2} \end{array} $	4-9-8 6-4-16 8-0-16 9-7-14 11-2-16 12-9-16 14-4-18 16-0-18 17-7-16 19-2-1	4\frac{13}{16} 6\frac{1}{16} 8 9\frac{5}{8} 11\frac{3}{16} 1-0\frac{13}{16} 1-2\frac{1}{16} 1-4 1-5\frac{5}{8} 1-\frac{3}{16}	2-3 3-0 3-9 4-6 5-3 6-0 6-9 7-6 8-3 9-0	
234567890123	1-27/6 2-48/8 3-7/4 4-91/6 6-08/8 7-29/8 8-41/6 9-78/8 10-91/6 12-04/13-28/8 14-51/6 15-7½	15 13 16 2 16 16 16 16 16 16 16 16 16 16 16 16 16	$\begin{array}{c}   -6\frac{3}{4} \\ 3 -   \frac{1}{2} \\ 4 - 8\frac{1}{6} \\ 6 - 3\frac{1}{6} \\ 7 - 9\frac{13}{6} \\ 9 - 4\frac{9}{6} \\   0 - 1   \frac{5}{6} \\   12 - 6\frac{1}{8} \\   14 - 0\frac{7}{8} \\   15 - 7\frac{3}{8} \\   17 - 2\frac{3}{8} \\   18 - 9\frac{1}{8} \\ 20 - 3\frac{15}{6} \\ 20 - 3\frac{15}{6} \\ \end{array}$	16   16   3   5   6   4   16   6   4   16   6   6   7   16   16	8 1-4 2-0 2-8 3-4 4-0 4-8 5-4 6-0 6-8 7-4 8-0 8-8	15   2   2   16   3   5   6   6   16   6   7   5   6   7   6	2 3 4 5 6 7 8 9 10 11 12 13	2-516 3-88 4-1016 6-12 7-44 8-616 9-98 11-03 12-316 13-53 14-82 15-1136	2 1/16 3 1/16 4 1/16 6 1/18 7 3/18 8 9/16 11 1 - 0 1/14 1 - 1 1/12 1 - 2 1/16	$3-2$ $4-8\frac{15}{16}$ $6-3\frac{15}{16}$ $7-10\frac{15}{16}$ $9-5\frac{7}{8}$ $11-0\frac{7}{8}$ $14-2\frac{7}{16}$ $15-9\frac{7}{16}$ $17-4\frac{13}{16}$ $18-1\frac{7}{4}$ $20-6\frac{3}{4}$	3 16 43 4 65 16 715 9 2 11 16 1-016 1-2 4 1-3 13 1-5 3 1-7	$   \begin{array}{c}           1-5 \\           2-1 \frac{1}{2} \\           2-10 \\           3-6 \frac{1}{2} \\           4-3 \\           4-1 \frac{1}{2} \\           5-8 \\           6-4 \frac{1}{2} \\           7-1 \\           7-9 \frac{1}{2} \\           8-6 \\           9-2 \frac{1}{2} \\     \end{array} $	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 4 5 6 7 8 8 9 9 11 12 13	3-9 5-0 6-3 7-6 8-9 10-0 11-3 12-6 13-9 15-0 16-3	3 <sup>3</sup> / <sub>4</sub> 5 6 <sup>1</sup> / <sub>4</sub> 7 <sup>1</sup> / <sub>2</sub> 8 <sup>3</sup> / <sub>4</sub> 10 11 <sup>1</sup> / <sub>4</sub> 1-0 <sup>1</sup> / <sub>2</sub> 1-1 <sup>3</sup> / <sub>4</sub>	4-9 8 6-4 6 8-0 6 9-7 4 11-2 7 12-9 19 14-4 7 16-0 8 17-7 1 19-2 2 20-9 3	4\frac{13}{16} 6\frac{1}{16} 8 9\frac{5}{8} 11\frac{3}{16} 1-2\frac{1}{16} 1-2\frac{1}{16} 1-4 1-5\frac{3}{8} 1-7\frac{1}{16}	2-3 3-0 3-9 4-6 5-3 6-0 6-9 7-6 8-3 9-0	
234567890123	1-27/4 2-48/3 3-7/4 4-9/6 6-0/8 7-29/8 8-4/6 9-7/8 10-9/8 12-0/4 13-2/8 14-5/6	15 13 16 2 16 16 16 16 16 16 16 16 16 16 16 16 16	$\begin{array}{c}   -6\frac{3}{4}\\ 3 -   \frac{1}{2}\\ 4 - 8\frac{1}{6}\\ 6 - 3\frac{1}{6}\\ 6 - 3\frac{1}{6}\\ 7 - 9\frac{13}{6}\\ 9 - 4\frac{9}{16}\\   0 - 1 \frac{5}{6}\\   12 - 6\frac{1}{8}\\   14 - 0\frac{7}{8}\\   15 - 7\frac{5}{8}\\   17 - 2\frac{3}{8}\\   18 - 9\frac{1}{8}\\ \end{array}$	16 3 8 4 16 6 4 7 18 9 8 10 15 1 - 0 12 1 - 2 16 1 - 3 8 1 - 5 3 6 1 - 6 3	8 1-4 2-0 2-8 3-4 4-0 4-8 5-4 6-0 6-8 7-4 8-0	15   2   2   16   3   5   6   6   16   6   7   5   6   7   6	2 3 4 5 6 7 8 9 10 11 12 13	2-516 3-88 4-1016 6-12 7-44 8-615 9-98 11-03 12-316 13-53 14-82	$ \begin{array}{c} 2\frac{7}{16} \\ 3\frac{11}{16} \\ 4\frac{15}{16} \\ 6\frac{1}{8} \\ 7\frac{3}{8} \\ 8\frac{9}{16} \\ 9\frac{13}{16} \\ 11 \\ 1-0\frac{1}{4} \\ 1-2\frac{11}{16} \\ 1-2\frac{11}{16} \end{array} $	3-2 4-8\frac{15}{66} 6-3\frac{15}{66} 7-10\frac{15}{66} 9-5\frac{7}{8} 11-0\frac{7}{8} 12-7\frac{7}{8} 14-2\frac{13}{66} 15-9\frac{13}{16} 17-4\frac{13}{16} 18-1\frac{3}{4}	3 16 4 3 4 6 5 6 7 15 9 2 11 16 1 - 2 14 1 - 3 13 1 - 5 3 1 - 7	$   \begin{array}{c}     1-5 \\     2-1\frac{1}{2} \\     2-10 \\     3-6\frac{1}{2} \\     4-3 \\     4-11\frac{1}{2} \\     5-8 \\     6-4\frac{1}{2} \\     7-1 \\     7-9\frac{1}{2} \\     8-6   \end{array} $	11/16 2 1/8 2 1/3	3 4 5 6 6 7 8 8 9 9 10 12 13 14	3-9 5-0 6-3 7-6 8-9 10-0 11-3 12-6 13-9 15-0	3 <sup>3</sup> / <sub>4</sub> 5 6 <sup>1</sup> / <sub>4</sub> 7 <sup>1</sup> / <sub>2</sub> 8 <sup>3</sup> / <sub>4</sub> 10 11 <sup>1</sup> / <sub>4</sub> 1-0 <sup>1</sup> / <sub>2</sub> 1-1 <sup>3</sup> / <sub>4</sub>	4-9-8 6-4-16 8-0-16 9-7-14 11-2-16 12-9-16 14-4-18 16-0-18 17-7-16 19-2-1	4\frac{13}{16} 6\frac{7}{16} 8 9\frac{8}{8} 11\frac{3}{16} 1-0\frac{13}{16} 1-2\frac{7}{16} 1-4 1-7\frac{3}{16} 1-7\frac{3}{16}	2-3 3-0 3-9 4-6 5-3 6-0 6-9 7-6 8-3 9-0	

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14-0 <sup>3</sup> / <sub>8</sub>	1-2	17-915	1-513	8-81	811	11	14-313	1-25/16	18-0#	1-616	9-2	93		14-73	1-25	18-31/2	1-65	9-7%	95
15-311	1-35/16	19-5 ह	1-77	9-6	9늘	12	15-77	1-35	19-83	1-711	10-0	10	12	15-11 <del>3</del>	1-315	19-11=	1-715	10-6	101
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11-116				~~~		15	19-68		24-72		12-6		15	19-11%		24-118		13-12	
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$4 - 0\frac{13}{16}$ $5 - 5\frac{1}{8}$	41/6 57/6	5-011/6 6-87/8	5 ½ 6 ¾	2-9	2 <del>3</del> /4 3!!	3	4-1종	4 <sup>3</sup> / <sub>16</sub> 5 <sup>9</sup> / <sub>16</sub>	5-1½ 6-10	5 \frac{13}{16}	2-10½ 3-10	2 7 8 3 13 16	3	4-2 <sup>15</sup> 5-7 <sup>1</sup> / <sub>8</sub>	41/4	5-2 <sup>3</sup> / <sub>8</sub> 6-11 <sup>1</sup> / <sub>8</sub>		3-0	3
$ 4-0\frac{13}{16} \\ 5-5\frac{1}{8} \\ 6-9\frac{3}{8} $	41/6 57/6 613/6	5-0 <sup>11</sup> / <sub>16</sub> 6-8 <sup>7</sup> / <sub>8</sub> 8-5 <sup>1</sup> / <sub>8</sub>	5 \frac{1}{16} 6\frac{3}{4} 8\frac{7}{16}	2-9 3-8 4-7	2 <sup>3</sup> / <sub>4</sub> 3 <sup>11</sup> / <sub>16</sub> 4 <sup>9</sup> / <sub>16</sub>	3 4 5	$4 - 1\frac{7}{8}$ $5 - 6\frac{1}{2}$ $6 - 11\frac{1}{8}$	4 <sup>3</sup> / <sub>16</sub> 5 <sup>9</sup> / <sub>16</sub> 6 <sup>15</sup> / <sub>16</sub>	5-1½ 6-10 8-6½	5 8 9 8 16	2-10½ 3-10 4-9½	2 7 8 3 13 16 4 13 16	3 4 5	$4-2\frac{15}{16}$ $5-7\frac{1}{8}$ $7-0\frac{7}{8}$	4 <sup>1</sup> / <sub>4</sub> 5 <sup>11</sup> / <sub>16</sub> 7 <sup>1</sup> / <sub>16</sub>	5-2\frac{3}{8} 6-11\frac{1}{8} 8-7\frac{15}{16}	5 <sup>3</sup> / <sub>16</sub> 6 <sup>15</sup> / <sub>16</sub> 8 <sup>11</sup> / <sub>16</sub>	3-0 4-0 5-0	
$ 4-0\frac{13}{16} \\ 5-5\frac{1}{8} \\ 6-9\frac{3}{8} \\ 8-1\frac{11}{16} $	41/6 51/6 61/8 81/8	5-016 6-878 8-58 10-18	5 \frac{1}{16} 6 \frac{3}{4} 8 \frac{7}{16} 10 \frac{1}{8}	2-9 3-8 4-7 5-6	2 <sup>3</sup> / <sub>4</sub> 3 <sup>11</sup> / <sub>16</sub> 4 <sup>9</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>2</sub>	3 4 5 6	$ \begin{array}{c} 4 - 1\frac{7}{8} \\ 5 - 6\frac{1}{2} \\ 6 - 11\frac{1}{8} \\ 8 - 3\frac{3}{4} \end{array} $	4 <sup>3</sup> / <sub>16</sub> 5 <sup>9</sup> / <sub>16</sub> 6 <sup>15</sup> / <sub>16</sub> 8 <sup>5</sup> / <sub>16</sub>	5- 1½ 6-10 8-6½ 10-3	5 8 6 13 8 9 10 1	2-10½ 3-10 4-9½ 5-9	2 <sup>7</sup> / <sub>8</sub> 3 <sup>13</sup> / <sub>16</sub> 4 <sup>13</sup> / <sub>16</sub> 5 <sup>3</sup> / <sub>4</sub>	<ul><li>3</li><li>4</li><li>5</li><li>6</li></ul>	$ 4-2\frac{15}{16} \\ 5-7\frac{7}{8} \\ 7-0\frac{7}{8} \\ 8-5\frac{13}{16} $	4 <sup>1</sup> / <sub>4</sub> 5 <sup>11</sup> / <sub>16</sub> 7 <sup>1</sup> / <sub>16</sub> 8 <sup>1</sup> / <sub>2</sub>	5-23/8 6-111/8 8-71/6 10-411/6	5 <sup>3</sup> / <sub>16</sub> 6 <sup>15</sup> / <sub>16</sub> 8 <sup>11</sup> / <sub>16</sub> 10 <sup>3</sup> / <sub>8</sub>	3-0 4-0 5-0 6-0	4 5 6
$ 4-0\frac{13}{16}  5-5\frac{1}{8}  6-9\frac{3}{8}  8-1\frac{11}{16}  9-5\frac{15}{16} $	41/6 51/6 61/8 81/8 91/2	5-016 6-88 8-58 10-18 11-99	5   6   3   4   8   7   16   10   8   1   13   16   16   16   16   16   16	2-9 3-8 4-7 5-6 6-5	2 <sup>3</sup> / <sub>4</sub> 3 <sup>11</sup> / <sub>16</sub> 4 <sup>9</sup> / <sub>16</sub> 5 <sup>1</sup> / <sub>2</sub> 6 <sup>7</sup> / <sub>16</sub>	3 4 5 6 7	4-1\frac{7}{8} 5-6\frac{1}{2} 6-11\frac{1}{8} 8-3\frac{3}{4} 9-8\frac{3}{8}	436 596 696 856 916	5-1½ 6-10 8-6½ 10-3	5 8 9 16 10 4 15 16	2-10½ 3-10 4-9½ 5-9 6-8½	2 8 3 13 16 4 13 16 5 3 4 6 16	<ul><li>3</li><li>4</li><li>5</li><li>6</li><li>7</li></ul>	$ \begin{array}{c} 4 - 2\frac{15}{16} \\ 5 - 7\frac{7}{8} \\ 7 - 0\frac{7}{8} \\ 8 - 5\frac{13}{16} \\ 9 - 10\frac{13}{16} \end{array} $	4 <sup>1</sup> / <sub>4</sub> 5 <sup>11</sup> / <sub>16</sub> 7 <sup>1</sup> / <sub>16</sub> 8 <sup>1</sup> / <sub>2</sub> 9 <sup>7</sup> / <sub>8</sub>	5-23/8 6-111/8 8-715/6 10-411/6 12-11/2	5 36 6 15 8 11 10 38 1 - 0 8	3-0 4-0 5-0 6-0 7-0	4 5 6 7
$ 4 - 0\frac{13}{16}  5 - 5\frac{1}{8}  6 - 9\frac{3}{8}  8 - 1\frac{11}{16}  9 - 5\frac{15}{16}  0 - 10\frac{1}{4} $	4 1/6 5 7/6 6 1/3 6 1/8 9 1/2 10 7/8	5-016 6-88 8-58 10-13 11-96 13-513 13-513	5 \frac{1}{16} 6 \frac{3}{4} 8 \frac{7}{16} 10 \frac{1}{8} 11 \frac{13}{16} 1 - 1 \frac{1}{2}	2-9 3-8 4-7 5-6 6-5 7-4	234 3116 496 512 616 716	3 4 5 6 7 8	$ \begin{array}{c c} 4 - 1\frac{7}{8} \\ 5 - 6\frac{1}{2} \\ 6 - 11\frac{1}{8} \\ 8 - 3\frac{3}{4} \\ 9 - 8\frac{3}{8} \\ 11 - 1 \end{array} $	4 5 6 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	5-1½ 6-10 8-6½ 10-3 11-11½ 13-8	5 8 6 13 6 9 16 10 1 15 16 1 1 16 1 16 1 16 1 16 1 1	2-10½ 3-10 4-9½ 5-9 6-8½ 7-8	2 8 3 13 16 4 16 5 3 4 16 16 7 16 7 16	3 4 5 6 7 8	$ \begin{array}{c} 4 - 2\frac{15}{16} \\ 5 - 7\frac{7}{8} \\ 7 - 0\frac{7}{8} \\ 8 - 5\frac{13}{16} \\ 9 - 10\frac{13}{16} \\ 11 - 3\frac{3}{4} \end{array} $	4-4 5-1-16 7-16 8-12 9-18 11-16	5-23/8 6-111/8 8-71/5 10-41/6 12-11/2 13-101/4	5 <sup>3</sup> / <sub>16</sub> 6 <sup>15</sup> / <sub>16</sub> 8 <sup>11</sup> / <sub>16</sub> 10 <sup>3</sup> / <sub>8</sub> 1-0 <sup>1</sup> / <sub>8</sub>	3-0 4-0 5-0 6-0 7-0 8-0	4 5 6 7 8
$\begin{array}{c} 4 - 0\frac{13}{16} \\ 5 - 5\frac{1}{8} \\ 6 - 9\frac{3}{8} \\ 8 - 1\frac{11}{16} \\ 9 - 5\frac{15}{16} \\ 0 - 10\frac{1}{4} \\ 2 - 2\frac{1}{2} \end{array}$	4 1/6 5 7/6 6 1/8 8 1/8 9 1/2 10 7/8 1 - 0 3/16	5-016 6-878 8-518 10-138 11-916 13-5136 15-2	5 16 6 34 8 76 10 18 11 13 1-12 1-3 16	2-9 3-8 4-7 5-6 6-5 7-4 8-3	234 3!!6916 5-2 6656 7-16 84	3 4 5 6 7 8 9	$ \begin{array}{c c} 4 - 1\frac{7}{8} \\ 5 - 6\frac{1}{2} \\ 6 - 11\frac{1}{8} \\ 8 - 3\frac{3}{4} \\ 9 - 8\frac{3}{8} \\ 11 - 1 \\ 12 - 5\frac{9}{16} \end{array} $	4 1 5 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	5-1½ 6-10 8-6½ 10-3 11-11½ 13-8 15-4½	5 8 9 16 10 1 1 15 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2-10½ 3-10 4-9½ 5-9 6-8½ 7-8 8-7½	2 8 3 13 16 13 16 16 16 16 16 16 16 16 16 16 16 16 16	3 4 5 6 7 8 9	$ \begin{array}{c} 4 - 2\frac{15}{16} \\ 5 - 7\frac{7}{8} \\ 7 - 0\frac{7}{8} \\ 8 - 5\frac{13}{16} \\ 9 - 10\frac{13}{16} \\ 11 - 3\frac{3}{4} \\ 12 - 8\frac{3}{4} \end{array} $	4-4 5-1-6 8-1-2 9-1-8 11-1-6 1-0-3 1-0-3	5-2\frac{3}{8} 6-11\frac{1}{8} 8-7\frac{15}{16} 10-4\frac{11}{16} 12-1\frac{1}{2} 13-10\frac{1}{4} 15-7\frac{1}{16}	5 <sup>3</sup> / <sub>16</sub> 6 <sup>15</sup> / <sub>16</sub> 8 <sup>16</sup> / <sub>16</sub> 10 <sup>3</sup> / <sub>8</sub> 1-0 <sup>1</sup> / <sub>8</sub> 1-3 <sup>9</sup> / <sub>16</sub>	3-0 4-0 5-0 6-0 7-0 8-0 9-0	4 5 6 7 8 9
$\begin{array}{c} 4 - 0\frac{13}{16} \\ 5 - 5\frac{1}{8} \\ 6 - 9\frac{3}{8} \\ 8 - 1\frac{11}{16} \\ 9 - 5\frac{15}{16} \\ 0 - 10\frac{1}{4} \\ 2 - 2\frac{1}{2} \\ 3 - 6\frac{13}{16} \end{array}$	$\begin{array}{c} 4\frac{1}{16} \\ 5\frac{7}{16} \\ 6\frac{13}{16} \\ 8\frac{1}{8} \\ 9\frac{1}{2} \\ 10\frac{7}{8} \\ 1-1\frac{9}{16} \\ 1-1\frac{9}{16} \end{array}$	5-0	5 \frac{1}{16} 6 \frac{3}{4} 8 \frac{7}{16} 10 \frac{1}{8} 11 \frac{13}{16} 1 - 1 \frac{1}{2} 1 - 3 \frac{3}{16} 1 - 4 \frac{7}{8}	2-9 3-8 4-7 5-6 6-5 7-4 8-3 9-2	234 316 496 52 676 716 8-4 916	3 4 5 6 7 8 9	$ \begin{array}{c c} 4 - 1\frac{7}{8} \\ 5 - 6\frac{1}{2} \\ 6 - 11\frac{1}{8} \\ 8 - 3\frac{3}{4} \\ 9 - 8\frac{3}{8} \\ 11 - 1 \\ 12 - 5\frac{9}{16} \\ 13 - 10\frac{3}{16} \end{array} $	436 596 615 859 916 116 1-02 1-18	5-1½ 6-10 8-6½ 10-3 11-1½ 13-8 15-4½	5 8 3 6 16 8 9 16 10 14 11 15 16 16 1 - 3 8 1 - 5 16 16 16 1 - 5 16	2-10½ 3-10 4-9½ 5-9 6-8½ 7-8 8-7½ 9-7	2 7 8 3 13 6 13 6 16 6 16 6 7 16 8 5 8 9 9 16	3 4 5 6 7 8 9	$\begin{array}{c} 4-2\frac{15}{16} \\ 5-7\frac{7}{8} \\ 7-0\frac{7}{8} \\ 8-5\frac{13}{16} \\ 9-10\frac{13}{16} \\ 11-3\frac{3}{4} \\ 12-8\frac{3}{4} \\ 14-1\frac{11}{16} \end{array}$	$\begin{array}{c} 4\frac{1}{4} \\ 5\frac{1}{16} \\ \hline \\ 8\frac{1}{2} \\ \hline \\ 9\frac{7}{8} \\ \hline \\ 1-0\frac{3}{4} \\ \hline \\ 1-2\frac{1}{8} \\ \end{array}$	$\begin{array}{c} 5 - 2\frac{3}{8} \\ 6 - 11\frac{1}{8} \\ 8 - 7\frac{15}{16} \\ 10 - 4\frac{11}{16} \\ 12 - 1\frac{1}{2} \\ 13 - 10\frac{1}{4} \\ 15 - 7\frac{1}{16} \\ 17 - 3\frac{7}{8} \end{array}$	536 616 816 1038 1-08 1-178 1-366 1-556	3-0 4-0 5-0 6-0 7-0 8-0 9-0	4 5 6 7 8 9
$\begin{array}{c} 4 - 0\frac{13}{16} \\ 5 - 5\frac{1}{8} \\ 6 - 9\frac{3}{8} \\ 8 - 1\frac{11}{16} \\ 9 - 5\frac{15}{16} \\ 0 - 10\frac{1}{4} \\ 2 - 2\frac{1}{2} \\ 3 - 6\frac{13}{16} \\ 4 - 11\frac{1}{16} \end{array}$	$\begin{array}{c} 4\frac{1}{16} \\ 5\frac{1}{16} \\ 6\frac{13}{16} \\ 8\frac{1}{8} \\ 9\frac{1}{2} \\ 10\frac{3}{16} \\ 1-1\frac{9}{16} \\ 1-2\frac{15}{16} \end{array}$	5-0   16   6-8   8   8   5   8   10   13   11   9   16   13   5   13   15   2   16   10   4   18   6   7   16   16   16   16   16   16	5 \frac{16}{63} \\ 63 \\ 87 \\ 10 \\ 10 \\ 11 \\ 1-1 \\ 1-3 \\ 1-4 \\ 1-6 \\ 1-	2-9 3-8 4-7 5-6 6-5 7-4 8-3 9-2	234 3116 476 5-2 616 84 936 1016	3 4 5 6 7 8 9 10 11	$\begin{array}{c} 4 - 1\frac{7}{8} \\ 5 - 6\frac{1}{2} \\ 6 - 11\frac{1}{8} \\ 8 - 3\frac{3}{4} \\ 9 - 8\frac{3}{8} \\ 11 - 1 \\ 12 - 5\frac{1}{16} \\ 13 - 10\frac{3}{16} \\ 15 - 2\frac{13}{16} \\ \end{array}$	436 596 615 615 856 916 116 1-02 1-18 1-34	5- 1½ 6-10 8-6½ 10-3 11-11½ 13-8 15-4½ 17-1 18-9½	5 8 9 16 8 16 10 14 11 15 16 1 1 - 3 3 8 1 - 5 16 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 1 1	$ \begin{array}{c} 2 - 10 \frac{1}{2} \\ 3 - 10 \\ 4 - 9 \frac{1}{2} \\ 5 - 9 \\ 6 - 8 \frac{1}{2} \\ 7 - 8 \\ 8 - 7 \frac{1}{2} \\ 9 - 7 \\ 10 - 6 \frac{1}{2} \end{array} $	2 7 8 3 3 16 4 13 16 5 3 4 6 16 6 16 6 16 6 16 6 16 16 16 16 16 16	3 4 5 6 7 8 9 10	$\begin{array}{c} 4 - 2\frac{15}{16} \\ 5 - 7\frac{1}{8} \\ 7 - 0\frac{7}{8} \\ 8 - 5\frac{13}{16} \\ 9 - 10\frac{13}{16} \\ 11 - 3\frac{3}{4} \\ 12 - 8\frac{3}{4} \\ 14 - 1\frac{11}{16} \\ 15 - 6\frac{11}{16} \end{array}$	$\begin{array}{c} 4\frac{1}{4} \\ 5\frac{11}{16} \\ 7\frac{1}{16} \\ 8\frac{1}{2} \\ 9\frac{7}{8} \\ 11\frac{5}{16} \\ 1-0\frac{3}{4} \\ 1-2\frac{9}{16} \\ 1-3\frac{9}{16} \end{array}$	5-2\frac{3}{8} 6-11\frac{1}{8} 8-7\frac{15}{16} 10-4\frac{11}{6} 12-1\frac{1}{2} 13-10\frac{1}{4} 15-7\frac{1}{16} 17-3\frac{3}{8} 19-0\frac{5}{8}	5 16 15 16 10 18 1 1 - 0 18 1 - 3 16 1 - 5 16 1 - 7 16 1	3-0 4-0 5-0 6-0 7-0 8-0 9-0 10-0	4 5 6 7 8 9 10
$\begin{array}{c} 4 \cdot 0\frac{13}{16} \\ 5 \cdot 5\frac{1}{8} \\ 6 \cdot 9\frac{3}{8} \\ 8 \cdot 1\frac{11}{16} \\ 9 \cdot 5\frac{15}{16} \\ 0 \cdot 10\frac{1}{4} \\ 2 \cdot 2\frac{1}{2} \\ 3 \cdot 6\frac{13}{16} \\ 4 \cdot 11\frac{1}{16} \\ 6 \cdot 3\frac{3}{8} \end{array}$	$\begin{array}{c} 4\frac{1}{16} \\ 5\frac{7}{16} \\ 6\frac{13}{16} \\ 8\frac{1}{8} \\ 9\frac{1}{2} \\ 10\frac{3}{16} \\ 1-0\frac{3}{16} \\ 1-2\frac{15}{16} \\ 1-4\frac{1}{4} \\ 1-4\frac{1}{4} \end{array}$	5-0	5   6   3   4   8   7   6   6   8   7   6   6   6   6   6   6   6   6   6	2-9 3-8 4-7 5-6 6-5 7-4 8-3 9-2 10-1	234 316 496 5-2 676 759 84 936 10-16	3 4 5 6 7 8 9 10 11 12	$\begin{array}{c} 4 - 1\frac{7}{8} \\ 5 - 6\frac{1}{2} \\ 6 - 11\frac{1}{8} \\ 8 - 3\frac{3}{4} \\ 9 - 8\frac{3}{8} \\ 11 - 1 \\ 12 - 5\frac{9}{16} \\ 13 - 10\frac{3}{16} \\ 15 - 2\frac{13}{16} \\ 16 - 7\frac{7}{16} \end{array}$	436 516 516 516 516 516 116 116 11 11 11 11 11 11 11 11 11 11	5- 1½ 6-10 8-6½ 10-3 11-11½ 13-8 15-4½ 17-1 18-9½ 20-6	5 8 3 6 16 8 9 16 10 14 11 15 16 16 1 - 3 8 1 - 5 16 16 16 1 - 5 16	$ \begin{array}{c} 2 - 10 \frac{1}{2} \\ 3 - 10 \\ 4 - 9 \frac{1}{2} \\ 5 - 9 \\ 6 - 8 \frac{1}{2} \\ 7 - 8 \\ 8 - 7 \frac{1}{2} \\ 9 - 7 \\ 10 - 6 \frac{1}{2} \\ 11 - 6 \end{array} $	2 7 8 3 13 16 16 17 16 16 16 17 12 16 16 17 17 17 17 17 17 17 17 17 17 17 17 17	3 4 5 6 7 8 9 10 11 12	$A - 2\frac{15}{16}$ $5 - 7\frac{1}{8}$ $7 - 0\frac{7}{8}$ $8 - 5\frac{13}{16}$ $9 - 10\frac{13}{16}$ $11 - 3\frac{3}{4}$ $12 - 8\frac{3}{4}$ $14 - 1\frac{11}{16}$ $15 - 6\frac{11}{16}$ $16 - 11\frac{5}{8}$	$\begin{array}{c} 4\frac{1}{4} \\ 5\frac{1}{16} \\ 7\frac{1}{16} \\ 8\frac{1}{2} \\ 9\frac{7}{18} \\ 11\frac{5}{16} \\ 1-0\frac{3}{4} \\ 1-2\frac{9}{18} \\ 1-3\frac{9}{16} \\ 1-5 \end{array}$	5-2\frac{3}{8} 6-11\frac{1}{8} 8-7\frac{15}{16} 10-4\frac{11}{16} 12-1\frac{1}{2} 13-10\frac{1}{4} 15-7\frac{1}{16} 17-3\frac{1}{8} 19-0\frac{5}{8} 20-9\frac{1}{16}	5   5   5   6   6   6   6   6   6   6	3-0 4-0 5-0 6-0 7-0 8-0 9-0 10-0 11-0 12-0	4 5 6 7 8 9
$\begin{array}{c} 4 - 0\frac{13}{16} \\ 5 - 5\frac{1}{8} \\ 6 - 9\frac{3}{8} \\ 8 - 1\frac{11}{16} \\ 9 - 5\frac{15}{16} \\ 0 - 10\frac{1}{4} \\ 2 - 2\frac{1}{2} \\ 3 - 6\frac{13}{16} \\ 4 - 11\frac{1}{16} \end{array}$	$\begin{array}{c} 4\frac{1}{16} \\ 5\frac{7}{16} \\ 6\frac{13}{16} \\ 8\frac{1}{8} \\ 9\frac{1}{2} \\ 10\frac{3}{16} \\ 1-0\frac{3}{16} \\ 1-2\frac{15}{16} \\ 1-4\frac{1}{4} \\ 1\end{array}$	5-0   16   6-8   8   8   5   8   10   13   11   9   16   13   5   13   15   2   16   10   4   18   6   7   16   16   16   16   16   16	5 \frac{1}{6} \frac{3}{4} \\ 8 \frac{7}{16} \]  0 \frac{1}{8} \\  1 \frac{13}{16} \\  - 1 \frac{1}{2} \\  - 3 \frac{3}{16} \\  - 4 \frac{7}{8} \\  - 6 \frac{7}{16} \\  - 8 \frac{1}{4} \\	2-9 3-8 4-7 5-6 6-5 7-4 8-3 9-2	234 3116 416 516 516 814 936 1016	3 4 5 6 7 8 9 10 11 12 13	$\begin{array}{c} 4 - 1\frac{7}{8} \\ 5 - 6\frac{1}{2} \\ 6 - 11\frac{1}{8} \\ 8 - 3\frac{3}{4} \\ 9 - 8\frac{3}{8} \\ 11 - 1 \\ 12 - 5\frac{1}{16} \\ 13 - 10\frac{3}{16} \\ 15 - 2\frac{13}{16} \\ \end{array}$	4 5 6 6 5 6 6 5 6 6 6 6 6 6 6 6 6 6 6 6	5- 1½ 6-10 8-6½ 10-3 11-11½ 13-8 15-4½ 17-1 18-9½	5 8 9 16 8 16 10 14 11 15 16 1 1 - 3 3 8 1 - 5 16 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 - 6 16 1 1 1 1	$ \begin{array}{c} 2 - 10 \frac{1}{2} \\ 3 - 10 \\ 4 - 9 \frac{1}{2} \\ 5 - 9 \\ 6 - 8 \frac{1}{2} \\ 7 - 8 \\ 8 - 7 \frac{1}{2} \\ 9 - 7 \\ 10 - 6 \frac{1}{2} \end{array} $	2 7 8 3 13 16 16 17 16 16 16 17 12 16 16 17 17 17 17 17 17 17 17 17 17 17 17 17	3 4 5 6 7 8 9 10 11 12 13	$\begin{array}{c} 4 - 2\frac{15}{16} \\ 5 - 7\frac{1}{8} \\ 7 - 0\frac{7}{8} \\ 8 - 5\frac{13}{16} \\ 9 - 10\frac{13}{16} \\ 11 - 3\frac{3}{4} \\ 12 - 8\frac{3}{4} \\ 14 - 1\frac{11}{16} \\ 15 - 6\frac{11}{16} \end{array}$	4 1/4 5116 8 1/8 1/16 8 1/16 1/16 1/16 1/16 1/1	5-2\frac{3}{8} 6-11\frac{1}{8} 8-7\frac{15}{16} 10-4\frac{11}{6} 12-1\frac{1}{2} 13-10\frac{1}{4} 15-7\frac{1}{16} 17-3\frac{3}{8} 19-0\frac{5}{8}	5   6   5   6   6   6   6   6   6   6	3-0 4-0 5-0 6-0 7-0 8-0 9-0 10-0	4 5 6 7 8 9 10
	1-35/16/2-6-8 3-9/15/3-16/4-0-8 11-5-3/16/16-7 11-10-14/16	CENTERS 203" CENTERS 23" CENTERS 23" CENTERS 25" CENTERS 25" CENTERS 25" CENTERS 25" CENTERS 25"  CENTERS 25"  1-3 ig   1-4  2-6 s   2-ig   3-9 is   3 ig   5-14   5-8   6-42   68   7-7 is   1-1 ig   8-11 s   8-15 ig   10-2 ig   10 ig   11-5 ig   1-0 ig   11-5 ig   1-0 ig   11-10 ig   1	CENTERS 203/8" CENTERS 25/2" CENTERS 25/2" CENTERS 305/8"  OMMON AND HIP LICENTERS 305/8"  OMMON AND LICENTERS 505/2"  CENTERS 305/8"  OMMON AND HIP LICENTERS 505/8"  5	CENTERS 203/8"  CENTERS 233" CENTERS 305/8"  CENTERS 201/8"  CENTERS 201/8"  CENTERS 201/8"  CENTERS 201/8"  CENTERS 201/8"  CENTERS 305/8"  C	CENTERS 20 /8 19/48 Pitch  CENTERS 23 /2"  CENTERS 36 /8"  CENTERS 26 /8"  CENTERS 26 /8"  CENTERS 26 /8"  CENTERS 21 /8"  CEN	CENTERS 203/8 19/48 Pitch 38° 22' CENTERS 23'' CENTERS 25'/2" CENTERS 305/8"  OMMON AND VALLEY TOTAL RISE Feet Inches Feet Inches Feet Inches  Feet Inches Feet Inches Feet Inches  Feet Inches Feet Inches Feet Inches    15	CENTERS 203/8 19/48 Pitch 38° 22' 12 18 18 19/48 Pitch 38° 22' 18 18 18 18 18 18 18 18 18 18 18 18 18	19/48 Pitch 38°2C   12° CENTE 18° CENTERS 23° 25° 22° 24° CENTERS 25° 25° 22° 24° CENTERS 25° 25° 22° 24° CENTERS 26° 25° 25° 24° CENTERS 24° CENTERS 24° CENTER 26° 25° 26° 26° 26° 26° 26° 26° 26° 26° 26° 26	12   CENTERS   120   18   12   18   18   18   18   18   18	19/48   Pitch   38° 22'   12'   CENTERS   15'   36'   15'   16'   CENTERS   23'   7/6'   20'   CENTERS   20'   7/6'   20'   CENTERS   20'   7/6'   20'	19/48 Pitch 38°22'   19/48 P	19/48   Pitch   38°22    19/48   Pitch   38°22    18'   CENTERS   20'1/6"   5/12   Pitch   18'   Pitch   20'1/6"   Pit	19/48 Pitch 38° 22'   19/48 Pitch 38° 31'   19/48 Pitch 38° 31'	19/48 Pitch 38°22'   19/48 Pitch 48°32'   19/48 P	Pas   Pitch 38 22	19/48   19/4	19/46 Pitch 38*22    19/46 Pitch 38*22    19/46 Pitch 38*22    19/46 Pitch 38*22    19/46 Pitch 39*48    19/46 Pitch 38*22    19/46 Pitch 39*48    19/46 P	19/48   Pitch 38°22   19/48   Pitch 38°22   19/48   Pitch 38°22   19/48   19	1/46   Pitch   38° 22   16°

W. HENRY NEUBECK - ARCHITECT

								20	OF		TAI	BLE	S							
TA 12' 16' 18' 20 24	CENTE CENTE CENTE CENTE		/16" /8" /8"	25/48	Rise Pitch 4		TA 12' 16' 18' 20 24	CENTE CENTE	SPACI RS 17 11 RS 23 9 RS 26 9 RS 29 17 RS 35 7	ING		Rise Pitch	13"	1.73	" CELATE	F SPACI RS 18 1/ RS 24 1/ RS 27 1/ RS 30 1/ RS 36 1/	16" (8" 8" 8"		Rise I Pitch 4	
2014	JACK R	N AND AFTERS	VALL	EY		RISE		COMMO JACK R	A AND	VALI	EY.	TOTAL		DANS	JACK B	AFTERS	YALL		TOTAL	
1/4	Feet		Feet	Inches	Feet	knches	1/A	Feet	Inches 3	Feet	Inches	reet	aches	1/4	Feet	Inches 3 8	Feet	Inches	Feet	inches
1/2		3 8		7			1/2		38		16			1/2		3 4	·	15 16		
34		116		8			/2 34		4		5			/2 ¾		1   8		16	-	
1	1-55		1-91	134	1-0=	1_1_	74	1-516	18	1-93	1月	1-1	11		1-616	18	1-911	18	1-12	18
2	2-101		1-91/16			116	2		215		3 9		23/6	2		3	3-73	3 5	2-3	24
2		2 \frac{1}{8} 4 \frac{5}{16}	3-6%	3½ 5¼	2-1	21	2	2-113	476	3-63		2-2			3-0\frac{3}{8}	-	5-516	576	3-4=	338
二	4-4 5-9 = 6		5-34	7	3-12	3 1/8	3	4-5급	57 57	5-48 7-13	5 <del>3</del>	3-3	3 <sup>1</sup> / <sub>4</sub> 4 <sup>5</sup> / <sub>6</sub>	3	6-04	4½	7-23	714	4-6	41/2
4		+	7-016	813		4 <sup>3</sup> / <sub>16</sub> 5 <sup>3</sup> / <sub>16</sub>	4	- 3			3 왕 왕	4-4	576		7-6意	7 1/2	9-07	916	5-7분	5 <del>5</del>
5	7-2-5	7 <del>4</del>	-	109	5-2=		5	7-46	$7\frac{3}{8}$	8-103		5-5 6-6	61/2	6	9-03	91/6	10-101	103	6-9	$\frac{38}{6\frac{3}{4}}$
6	8-8 10-1를	-			6-3	64	6	8-1016	10 5	12-5青	1-01/2	7-7	79	9 7	10-676	109	12-713	1-05	7-10-	73
9	11-65	108		1-05	7-3/2	7 <del>6</del> 8 <del>8</del>	-	10-3 ह		14 0	121	8-8	811	Q	12-0=	1-016	14 -1	1-27	9-0	9
8	12-11=		-	1-216	8-4 9-4½		8	13-34	118	14-5	1-416	9-9	93/4	8	13-6%	1-19	16-3=	1-44	10-12	10%
10		-	1140	1-313		93/8			1-14	17.93			10 13		E	1-316	18-07	1 0 1	11-3	114
11	14-54	1-27	_	1-5%	10-5		10	14-815 16 25	1-23	11-14	1-513	10-10	1016	10		9	19-10%	1-016	12-41	1-08
12	15-10-8	+	<u> </u>	1-75	13-52	117		16-25	1-44		1-75/8	13-0		12	16-6분 18-0축				13-6	1-12
12	17-3	1-5ই		1-916	12-6	1-0=	12	17-8=	1-516		1-93	13-0	1-1	-		1-616	23-51 <del>5</del>	1 116	14-71	1-12
13	18-94		22-10		13-6½		13			23-15		14-1		13	19-61	1			-	
14	1/11-/-		124 7 1		114 7			20 711		24 115		1E. 2	كنسو	LA	21 07		25 25		1E-9 1	
10	20-23	+	24-716		14-7		=	20-716		24-116		15-2			21-07		25-3 = 27-15		15-9 15-10-	
15	21-71		26-4 <sup>3</sup> / <sub>16</sub>		15-7늘	1 4 11	15	$22 - 1\frac{3}{8}$	SDAC	26-8k		16-3	141/6	15	22-615		27-15		16-10=	IE II
T	ABLE C CENT CENT CENT CENT CENT CENT CENT	F SPAC RS 18? RS 249 RS 2719 RS 303 RS 367	26-43/16 ING		Rise Pitch	49°24'	15 T/ 12 16 18 24	22- 13 ABLE O " CENTE " CENTE " CENTE " CENTE " CENTE	RS 181 RS 251 RS 281 RS 313 RS 371	26-8 6 ING 1/6" 1/4" 1/8"	AND	Rise		15	22-616 ABLE O	F SPACI RS 193 RS 259 RS 281 RS 32" RS 383	27-15 NG /16" /16" /16"		Rise	51-21
12 16 18 20 24	ABLE CENT CENT CENT CENT CENT CENT CENT CENT	E SDAC	26-43/16 ING		15-72 Rise Pitch		15 12 16 18 20 24	22-13 ABLE O. "CENTE" "CENTE" "CENTE" "CENTE" COMMO JACK R	RS 181 RS 251 RS 281 RS 313 RS 371	26-8 ING	AND	16-3 Rise	RISE	15 T. 12 16 18 20 24	ABLE O " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE	E SPACI	27-15 NG /16" /16" /8"		16-102 Rise Pitch 5	RISE
12 16 18 20 24	ABLE CENT CENT CENT CENT CENT CENT CENT CENT	F SPAC ERS 18 3 ERS 24 9 ERS 30 3 ERS 36 3 ON AND AFTERS	26-43/16 ING	AND	Rise Pitch	49°24'	15 12 16 18 20 24	22-13 ABLE O. "CENTE" "CENTE" "CENTE" "CENTE" COMMO JACK R	RS 18 18 25 18 25 18 28 18 37 18 37 18 AND	26-8 ING	AND	Rise Pitch 5	RISE	15 T. 12 16 18 20 24	ABLE O " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE	F SPACI RS 259 RS 281 RS 321 RS 383 N AND AFTERS	27-15 NG /16" /16" /8"	Inches	16-102 Rise Pitch 5	RISE
1/4 1/4	ABLE CENT CENT CENT CENT CENT CENT CENT CENT	F SPACERS 1879 RS 2499 RS 3093 RS 3093 RAFTERS Inches	26-43/16 ING	AND LEY Inches	Rise Pitch	49°24'	15 T/ 12 16 16 24 RUN	22-13 ABLE O. "CENTE" "CENTE" "CENTE" "CENTE" COMMO JACK R	RS 18 1 25 1 RS 28 1 3 RS 37 1 AND AFTERS	26-8   ING	AND EY Inches	Rise Pitch 5	RISE	15 T. 12 18 20 24	ABLE O " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE	F SPACI RS 193 RS 259 RS 383 RS 383 R	27-15 NG /16" /16" /8"	AND EY Inches	16-102 Rise Pitch 5	RISE
12 16 18 20 24	ABLE CENT CENT CENT CENT CENT CENT CENT CENT	F SPAC RS 187 RS 249 RS 303 RS 303 Inches	26-43/16" /16" /16" /16" /16" /16" /16" /16"	AND LEY Inches	Rise Pitch	49°24'	15 T/ 12 16 18 24 RUN	22-13 ABLE O. "CENTE" "CENTE" "CENTE" "CENTE" COMMO JACK R	RS 18 18 25 18 25 18 28 13 13 13 14 AND AFTERS 18 3 1 13 13 13	26-8 1 NG 3/16" /4" /4" /4" /4" /4" /4" /4" /4" /4" /4	AND EY Inches 1 16	Rise Pitch 5	RISE	15 T. 12 18 18 20 24	ABLE O " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE	F SPACI RS 193 RS 259 RS 281 RS 383 RS 383 NAMB AFTERS	27-15 NG /16" /16" /8"	Inches	16-102 Rise Pitch 5	RISE
1/2 1/2	ABLE CENT CENT CENT CENT CENT CENT CENT CENT	F SPAC RS 18? ERS 249 ERS 309 ERS 309 ERS 369 Inches	26-43/16 ING /16" /16" /4" HIP VAL Feet	AND LEY Inches	Rise Pitch	49°24'	15 T/12 16 16 22 RUN 1/4 1/2 3/4	22-13 ABLE O. "CENTE" "CENTE" "CENTE" "CENTE" COMMO JACK R	RS 18 18 25 25 18 28 28 18 37 37 18 AND AFTERS 18 18 18 18 18 18 18 18 18 18 18 18 18	26-8 1 NG 3/16" /4" /4" /4" /4" /4" /4" /4" /4" /4" /4	AND EY Inches	Rise Pitch 5	RISE Inches	15 Ti 18 20 24 24 1/2 34	ABLE O " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE	F SPACI RS 193, RS 259 RS 281 RS 383 RS 383	27-15 NG. 16-16-16-16-16-16-16-16-16-16-16-16-16-1	Inches   1 2   15   16   17   16   17   18	16-102 Rise Pitch 5	RISE
1/4 1/2 3/4	ABLE CONTROL CENT	F SPACERS 187: ERS 249: ERS 249: ERS 367: SPERS 367: DN AND AFTERS Inches 3 8 166: 196: 196: 196: 196: 196: 196: 196: 196:	26-43/16" /16" /16" /16" /16" /16" /16" /16"	AND LEY Inches 15 16 13 18	Rise Pitch	49°24' L RISE Inches	15 T, 12 16 18 200 24 24 1/4 1/2 34	22- 13 ABLE O "CENTE" CENTE" CENTE" CENTE CENTE CENTE COMMO JACK R Feet	RS 18 18 18 18 18 18 18 18 18 18 18 18 18	26-8 10 10 10 10 10 10 10 10 10 10 10 10 10	Inches   1   1   1   1   1   1   1   1   1	Rise Pitch 5	RISE Inches	15 Ti 18 20 24 24 1/2 34	22-616  ABLE O CENTE CENTE CENTE COMMO	F SPACI RS 193, RS 259 RS 281 RS 383 RS 383	27-15 NG. 16-16-16-16-16-16-16-16-16-16-16-16-16-1	Inches   1 2   15   16   17   16   17   18	Rise Pitch 5	RISE
1/4 1/2 3/4 1 2	ABLE CONTINUE CENT CENT CENT CENT CENT CENT CENT CEN	F SPAC ERS 187 RS 247 RS 363 RS 363 Inches Inches 3 3 4 16 16 17 16	26-43/16 ING //6" //6" //6" //6" //6" //6" //6" //6	AND LEY Inches	Rise Pitch TOTAL Feet	49°24'  L RISE [Inches]  13/166	15 T/ 12 16 20 24 24 1/4 1/2 34 1	22- 138  ABLE O  "CENTE" CENTE" CENTE" CENTE CENTE COMMO JACK R  Feet  1-613 3-158	RS 18 18 18 18 18 18 18 18 18 18 18 18 18	26-8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AND EY   Inches   166   188   188   334   34	Rise Pitch 5	RISE   13   16   2   16   2   16   16   16   16	15 Ti 122 166 188 200 24 1/4 1/2 344 1 2	22-616  ABLE O  "CENTE" CENTE CENTE CENTE CACK 1-73 1-73 3-276	F SPACE ES 193 RS 281 RS 281 RS 281 RS 383 NN AND AND ANTERS 381 RS 381	27-15 NG 16" 16" 16" 16" 16" 16" 16" 16" 16"	12 15 16 17 18 33	Rise Pitch 5 TOTAL Feet	RISE Inche
1/2 1/2 1/2 1/2	21-716 ABLE (C. CENT) CENT CENT COMMON COMMO	F SPACERS 18 2 24 9 24 9 24 9 24 9 24 9 24 9 24 9 2	26-43 ING 16 ING	The leading	Rise Pitch TOTAL Feet	49°24'  L RISE Inches  186  256  31/2	15 T/12 16 18 20 24 RUN 1/4 1/2 3/4 1 2 3	22- 138  ABLE O  "CENTE" CENTE" CENTE" CENTE CENTE COMMO JACK R  Feet  1-613 3-158	RS 18 RS 28 RS 28 RS 28 RS 31	26-8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AND   Inches   18   18   3   3   4   5   16   16   16   16   16   16   16	16-3 Rise Pitch 5 YOTAL Feet  1-21/2 2-5 3-71/2	RISE   Inches   13/16   2 1/16   3 5/8	15 T/12 16 18 20 24 1/4 1/2 34 1 2	22-616  ABLE O CENTE CENTE CENTE CENTE CENTE CENTE CATE CATE CATE CATE CATE A-7-8	F SPACE ES 193 RS 28 RS 28 RS 28 RS 38 RS 28 RS 38 RS 38 RS 28 RS 38 RS	27-15 NG 16-16-16-16-16-16-16-16-16-16-16-16-16-1	AND   Inches   1   2   15   16   17   17	Rise Pitch 5 TOTAL Feet	
1/4 1/2 3/4 1 2 3/4 1 2	21-71 CENT CENT CENT CENT CENT CENT CENT CENT	F SPACERS 1872 RS 1872 RS 2473 RS 2473 RS 3067	1-10 3-8 5-6	AND LEY Inches 1 16 15 16 13 18 13 16 5 17 5 17 16	15-7½ Rise Pitch TOTAL Feet  1-2 2-4 3-6 4-8	49°24'  L RISE Inches  13/66  25/66  31/2  41/6	15 T/1216618820224 24 1/4 1/2 34 1 2 3 4	22- 13/8  ABLE O  "CENTE" "CEN	RS 18 RS 28 RS 28 RS 28 RS 31 RS 28 RS 31	1-10 1 3-8 8 5-7	AND LEY Inches 16 15 16 13 18 18 17 18	16-3 Rise Pitch 5 TOTAL Feet  1-2½ 2-5 3-7½ 4-10	RISE   Inches   13   16   3   5   8   4   16   6   6   6   6   6   6   6   6	15 T: 12 18 202 24 1/2 34 1 2 34 1 2	22-616  ABLE O  "CENTE" CENTE "CENTE" CENTE "CENTE	F SPACI RS 193 RS 254 RS 282 RS 383 RS 38	27-15 NG NG NG NG NG NG NG NG NG NG NG NG NG	Inches In	16-102 Rise Pitch 5 TOTAL Feet	12
1/2 1/2 3/4 1 2 3/4 1 2 3/4 1 5	21-716 ABLE C. CENTY CENTY CENTY CONTY CON	F SPACERS 1872 RS 2473 RS 2473 RS 3037 RS 3067	26-43/16 NG NG NG NG NG NG NG NG NG NG NG NG NG	Inches   T   16   18   18   18   18   18   18   18	15-7½ Rise Pitch TOTAL Feet  1-2 2-4 3-6 4-8	49°24'  RISE Inches  13/16  25/16  41/16  51/18	15 T/12 16 18 20 24 RUN 1/4 1/2 3/4 1 2 3	22- 13 AALE O	RS 18 RS 28 PR 25 25 RS 37 RS 38 RS	26-8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Inches	16-3 Rise Pitch 5 TOTAL Feet  1-2½ 2-5 3-7½ 4-10	RISE   Inches   13/16   3/16   4/16   6/16   6/16   6/16   1/16	15 Till 188222 14 1/2 34 1 2 3 4 5	22-616  ABLE O  "CENTE" "CENTE	F SPACI RS 193 RS 258 RS 383 N AND AFTERS 133 166 136 136 1416 413 416 416 638 8	27-15 NG- NG- NG- NG- NG- NG- NG- NG- NG- NG-	Inches	16-10 E Rise Pitch 5  TOTAL Feet  1-3 2-6 3-9 5-0 6-3	21 21 21 2 2 2 3 3 2 5 6 2 7 7 2
1/4 1/2 3/4 1 2 3 4 5 6	21-7     2	F SPACERS 1872 RS 2472 RS 2473 RS 303 RS 304 RS 304 RS 304 RS 304 RS 304 RS 305	26-43/16 NG NG NG NG NG NG NG NG NG NG NG NG NG	Inches   I	Total Feet  1-2 2-4 3-6 4-8 5-10 7-0	13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15 T/12 168 2002 2014 1/4 1/2 3/4 1 2 3 4 5 6	22- 13 ABLE 0. ABLE 0. CENTE C	RS 18 RS 25 RS 28 RS 28 RS 31	1-10 1 3-8 8 5-7	Inches	16-3 Rise Pitch 5 TOTAL Feet  1-2½ 2-5 3-7½ 4-10 6-0½	RISE	15 Till 18 20222 2011 1/4 1/2 34 1 2 3 4 5 6	22-616  ABLE O  "CENTE" "CENTE	F SPACIES 193 RS 283 RS 283 RS 383 RS 283 RS 383 RS	27-15 NG NG NG NG NG NG NG NG NG NG NG NG NG	Inches	16-10 E Rise Pitch 5  TOTAL Feet  1-3 2-6 3-9 5-0 6-3	21 21 21 2 2 2 3 3 2 5 6 2 7 7 2
1/4 1/2 3/4 1 2 3/4 1 2 3 4 5	21-71 CENT CENT CENT CENT CENT CENT CENT CENT	F SPACERS 1872 RS 1872 RS 2473 RS 2473 RS 3067	1-10 3-8 5-6 7-4 9-2 11-0	Inches   15   16   13   18   18   18   18   18   18   18	15-7½ Rise Pitch TOTAI Feet  1-2 2-4 3-6 4-8 5-10 7-0 8-2	13 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15 T/12 16 18 22 24 2 14 1/2 34 1 2 3 4 5 6 7	22-13 ABLE O.  "CENTE" CENTE" CENTE" CENTE CENT	RS 18 RS 25 RS 25 RS 25 RS 31	1-10 1 3-0 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1   1   1   1   1   1   1   1   1   1	16-3 Rise Pitch 5  TOTAL Feet  1-2½ 2-5 3-7½ 4-10 6-0½ 7-3 8-5½	RISE   Inches   13   16   16   16   16   16   16   16	15 Till 18 2022 2022 2024 1/4 1/2 34 1 2 3 4 5 6 7	22-616  ABLE O  CENTE	F SPACI RS 28 193 RS 28 183 28	27-15/16 NG- NG- NG- NG- NG- NG- NG- NG- NG- NG-	Inches   12   15   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   17	16-10 E Rise Pitch 5  TOTAL Feet  1-3 2-6 3-9 5-0 6-3 7-6	21 21 21 2 2 2 3 3 2 5 6 2 7 7 2
1/2 1/2 3/4 1 2 3/4 1 2 3 4 5 6 7 8	1-6	F SPACERS 1872 RS 1872 RS 2473 RS 2473 RS 2473 RS 3067	26-43/16 NG NG NG NG NG NG NG NG NG NG NG NG NG	Inches   Total   Inches   In	15-7½ Rise Pitch  TOTAI Feet  1-2 2-4 3-6 4-8 5-10 7-0 8-2 9-4	13 E I I I I I I I I I I I I I I I I I I	15 T/12 16 18 22 34 1 2 3 4 5 6 7 8	22- 13 ABLE O AB	RS 188 RS 258 RS 289 RS 377 RS 313 RS 317 RS	1-10 5 5-7 7-5 13-04 14-10 16-11-11-11-11-11-11-11-11-11-11-11-11-1	Technos   15   15   16   17   16   17   16   17   16   17   16   17   17	16-3   Rise   Pitch   5   TOTAL   Feet	RISE   13   16   16   16   16   16   16   16	15 Ti2168 2022 24 1/2 34 1 2 3 4 5 6 7 8	22-616  ABLE O  CENTE	F SPACI RS 193 RS 253 RS 258 RS 328 RS 388 RS 38	27-15/16 NG- NG- NG- NG- NG- NG- NG- NG-	Inches   12   15   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   16   17   17	16-10 = Rise Pitch 5  TOTAL Feet  1-3 2-6 3-9 5-0 6-3 7-6 8-9	
1/2 1/2 3/4 1 2 3/4 1 2 3 4 5 6 7	1-6 R 3-0 8 4-7 16 12-3 12-3 13-9 16 16 16 16 16 16 16 16 16 16 16 16 16	F SPACERS 1872 RS 2472 RS 2473 RS 303 RS 2473 RS 303 RS 2473 RS 304 RS 3	26-43-16-10-10-10-10-10-10-10-10-10-10-10-10-10-	Inches   I	15-7½ Rise Pitch Total Feet  1-2 2-4 3-6 4-8 5-10 7-0 8-2 9-4 10-6	136   10   2   10   2   10   2   10   2   10   2   10   10	15 T/12 168 200 1/4 1/2 3/4 1 2 3 4 5 6 7 8 9	22- 13 ABLE O	RS 18 RS 28 RS 28 RS 28 RS 31	1-10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15 15 16 15 16 16 16 16 16 16 16 16 16 16 16 16 16	16-3   Rise   Pitch   5	RISE   13   16   17   17   17   17   17   17   17	15 TI 12 18 18 22 22 22 22 22 22 22 22 22 22 22 22 22	22-615 ABLE O TO CENTE COMM Fee+  1-73 R 6-412 8-014 8-014 11-27 11-27 11-27 11-27 11-4-48	F SPACIE RS 193 RS 283 RS 383 N AND AFTERS 184 RS 385 RS 385 RS 385 RS 386 RS 3	27-15 NG NG NG NG NG NG NG NG NG NG	100   100	16-10 E Rise Pitch 5  TOTAL Feet  1-3 2-6 3-9 5-0 6-3 7-6 8-9 10-0 11-3	215E 215E 225 23 23 25 6 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
1/2 1/2 3/4 1 2 3/4 1 2 3 4 5 6 7	1-6 13 1-7 15 16 16 17 16 16 17 16 16 17 16 17 16 17 16 17 16 17 16 17 17 17 17 17 17 17 17 17 17 17 17 17	F SPACERS 1822 RS 243 RS 244 RS 245 R	1-10 3-8 5-6 7-4 9-2 11-0 14-8 16-6 18-4	Inches   $\frac{7}{16}$   $\frac{15}{16}$   $\frac{15}{16}$   $\frac{13}{16}$   $13$	15-7½ Rise Pitch  Total Feet  1-2 2-4 3-6 4-8 5-10 7-0 8-2 9-4 10-6 11-8	13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15 T/12 16 16 16 16 16 16 16 16 16 16 16 16 16	22-13 ABLE O	RS 18 RS 28 RS 25 RS 37	1-105 3-88 5-7 7-55 11-11113-04 14-1016 16-83 10-74	1   1   1   1   1   1   1   1   1   1	16-3   Rise   Pitch   5	RISE   Inches	15 Tile 2022 1/4 1/2 34 1 2 3 4 5 6 7 8 9 10	22-616  ABLE OF CENTER	F SPACI RS 193 RS 259 RS 259 RS 383 RS 383 NN AND AFTERS 136 136 136 146 136 146 136 146 136 146 136 146 136 146 136 146 136 146 136 146 136 146 146 146 146 146 146 146 14	1-10 \( \frac{1}{8} \)  1-10 \( \frac{1}{8} \)  3-9 \( \frac{1}{16} \)  7-6 \( \frac{1}{8} \)  13-2 \( \frac{1}{16} \)  13-2 \( \frac{1}{16} \)  15-1 \( \frac{1}{3} \)  18-10 \( \frac{1}{2} \)  18-10 \( \frac{1}{2} \)	1-1   1-5   1-6   8   1-6   1-6   8   1-6   1-6   8   1-6   1-6   8   1-6   1-6   8   1-6   1-6   8   1-6   1-6   8   1-6   1-6   8   1-6	16-10 E Rise Pitch 5  TOTAL Feet  1-3 2-6 3-9 5-0 6-3 7-6 8-9 10-0	
1/2 1/2 3/4 1 2 3/4 1 2 3 4 5 6 7 8 9 10 11	CENT	F SPACERS 1872 RS 1872 RS 1872 RS 2473	1-10 3-8 5-6 7-4 9-2 11-0 14-8 16-6 18-4 20-2	Inches   15   16   16   16   16   16   16   16	15-7½ Rise Pitch  TOTAI Feet  1-2 2-4 3-6 4-8 5-10 7-0 8-2 9-4 10-6 11-8 12-10	136 24'  RISE Inches  136 3 2 4 16  3 1 2 16  7 8 6 6 10 1 2 11 16 16 11	15 Tr. 1212 168 224 2 2 3 4 1 2 3 4 5 6 7 8 9 10 11	22- 13 ABLE O AB	RS 188 RS 289 RS 313 RS 313 RS 317 N ANDA AFTERS 5 Inches  13 18 13 16 1 16 1 17 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1-10 5 3-8 5 5-7 7-5 5 11-1 13-0 4 10-6 8 10-7 4 20-5 9 12-1 13-0 4 20-5 9 10-7 4 20-5 9 10-7 4 14-10 16-0 8 10-7 4 20-5 9 10-7 4 14-10 16-0 8 10-7 4 20-5 9 10-7 4 14-10 16-0 8 10-7 4 14-10 16-0 16-0 16-0 16-0 16-0 16-0 16-0 1	15 16 18 18 18 18 18 18 18 18 18 18 18 18 18	16-3   Rise   Pitch   5	RISE   Inches	15 Till 18 2222 2 2 3 4 1 2 3 4 5 6 7 8 9 10 11 5 11	22-615  ABLE O  CENTE CE	F SPACIFES 193 RS 25 9 RS 25 9 RS 32	27-15/8 NG-16-10-8 3-9/8 3-9/8 13-2-6 8 13-2-6 8 18-10-2 20-9-8	Inches   1-5   1-68   1-8	16-10 = Rise Pitch 5  TOTAL Feet  1-3 2-6 3-9 5-0 6-3 7-6 8-9 10-0 11-3 12-6 13-9	
1/2 3/4 1/2 3/4 1/2 3/4 1/2 3/4 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2	1-6	F SPACERS 1872 RS 1872 RS 2473 RS 2473 RS 303 RS 2473 RS 303 RS 303 RS 2473 R	26-43-6-10-10-10-10-10-10-10-10-10-10-10-10-10-	Inches   $\frac{7}{16}$   $\frac{15}{16}$   $\frac{15}{16}$   $\frac{13}{16}$   $13$	15-7½ Rise Pitch Total Feet  1-2 2-4 3-6 4-8 5-10 7-0 8-2 9-4 10-6 11-8 12-10 14-0	13 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15 T/2 12 12 13 14 1/2 3 3 4 1 2 3 4 5 6 7 8 9 10 11 12	22- 13 ADLE O ADDE O AD	RS 188 RS 269 RS 289 RS 317 RS	1-1056 3-85 1-1056 3-85 5-7 7-556 11-11 13-04 14-1096 16-85 10-74 20-598	Tiches   T	16-3   Rise   Pitch   5	13   16   17   17   17   17   17   17   17	15 T. 126 1822 14 1/2 34 1 2 3 4 1 5 6 7 8 9 10 11 12 12 12 13 14 15 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	22-615 ABLE O ABLE O CENTE CEN	F SPACION SPAC	27-15 NG NG NG YAL 1-105 8 3-95 7-65 9-514 11-37 13-29 16-118 18-1012 20-98 22-98	Time	16-10 E Rise Pitch 5  TOTAL Feet 1-3  2-6  3-9  5-0  6-3  7-6  8-9  10-0  11-3  12-6  13-9  15-0	
1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13	1-6 1 3 - 0 8 4 - 7 1 8 1 9 - 2 8 1 1 - 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	F SPACERS 18:28:30:31:85:24:32:30:30:30:30:30:30:30:30:30:30:30:30:30:	26-43-6-10-10-10-10-10-10-10-10-10-10-10-10-10-	Inches   15   16   16   16   16   16   16   16	15-7½ Rise Pitch  TOTAI Feet  1-2 2-4 3-6 4-8 5-10 7-0 8-2 9-4 10-6 11-8 12-10 14-0 15-2	136 24'  RISE Inches  136 3 2 4 16  3 1 2 16  7 8 6 6 10 1 2 11 16 16 11	15 T/2 168 1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13	22-13 ABLE O	RS 18 RS 28 RS 28 RS 28 RS 37	1-105 3-85 1-105 3-85 1-11 13-04 14-101 16-83 10-74 20-54 22-33 24-23	1   1   1   1   1   1   1   1   1   1	I6-3   Rise   Pitch   S	13   16   17   17   17   17   17   17   17	15 Tile 1822 222 34 1/2 34 1 2 3 4 1 5 6 7 8 9 10 11 12 13	22-615 ABLE OF CENTER C	F SPACION AND AFTERS 259 RS 383 RS 38	1-10 \( \frac{1}{8} \)  1-10 \( \frac{1}{8} \)  3-9 \( \frac{1}{16} \)  7-6 \( \frac{1}{8} \)  3-9 \( \frac{1}{16} \)  7-6 \( \frac{1}{8} \)  13-2 \( \frac{1}{6} \)  13-3 \(	Inches   1-16	16-10½  Rise Pitch 5  TOTAL  Feet  1-3 2-6 3-9 5-0 6-3 7-6 8-9 10-0 11-3 12-6 13-9 15-0 16-3	21 21 21 2 2 3 3 2 2 5 6 4 7 2 8 2
1/2 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13	1-6	F SPACERS 1872 RS 1872 RS 2473	26-43-6-10-10-10-10-10-10-10-10-10-10-10-10-10-	Inches   15   16   16   16   16   16   16   16	15-7½ Rise Pitch Total Feet  1-2 2-4 3-6 4-8 5-10 7-0 8-2 9-4 10-6 11-8 12-10 14-0	136 24'  RISE Inches  136 3 2 4 16  3 1 2 16  7 8 6 6 10 1 2 11 16 16 11	15 T/2 1/2 3/4 1 2 3/4 1 2 3/4 1 5 6 7 8 9 10 11 12 13 14	22- 13 ADLE O ADDE O AD	RS 18 RS 28 RS 25 RS 31	1-1056 3-85 1-1056 3-85 5-7 7-556 11-11 13-04 14-1096 16-85 10-74 20-598	1   1   1   1   1   1   1   1   1   1	16-3   Rise   Pitch   5	13   16   16   16   16   16   16   16	15 TI 12 14 1/2 34 1 2 3 4 5 6 7 8 8 10 11 12 13 14 14 15 16 16 16 16 16 16 16 16 16 16	22-615 ABLE O ABLE O CENTE CEN	F SPACIFES 193 RS 25 9 RS 25 9 RS 32	27-15 NG NG NG YAL 1-105 8 3-95 7-65 9-514 11-37 13-29 16-118 18-1012 20-98 22-98	Telephone   Tele	16-10 E Rise Pitch 5  TOTAL Feet 1-3  2-6  3-9  5-0  6-3  7-6  8-9  10-0  11-3  12-6  13-9  15-0	R15   2

W. HENRY NEUBECK - ARCHITECT

								20	<u>OF</u>		IA	BLE	-							
TA 12: 16: 18: 20: 24	CENTER	SPACI 25 195/ 23 263/ 23 297/ 23 321/ 23 391/	8" 16" 16"	31/48	Rise Pitch		18	ABLE OF CENTE CENTE CENTE CENTE CENTE	25 20" 25 26" 25 30" 25 335	NG /16" /16"	2/3	Rise Pitch !		1.00	CENTE	RS 207 RS 277 RS 305 RS 34" RS 40"	A . "	33/48	Rise 1 Pitch 5	
	COMMO!	DHA M	HIP A		TOTAL	RISE		COMMO	A AND	HIP /	EY	TOTAL	RISE		JACK B	N AND	YALL		TOTAL	
		Inches		Inches	Feet	Inches			inches		inches	Feet	Inches			Inches	Feet	Inches	Feet	Inches
4		16		2			4		16		2			4		16		2		
1/2		13		15			1/2		13					1/2		8				
3/4		14		17/16			34		14		17/16			34		14	1 111	11/2		13
	1-75	15/8	1-11	115	1-31/2	15/16	1	1-8	111	1-115	15/16	1-4	15/16		1-87	1116	1-1111	2	1-42	13
2	$3 - 3\frac{3}{16}$	34	3-10	313	2-7	29/16	2	3-4	35/6	3-10 \$	37/8	2-8	211/16	2	3-413	376	3-117	315	2-9	23/4
3	4-10-13	415	5-815	53	3-10½	37		5-0	5	5-10	5뜮	4-0	4	3	5-1元	5븅	5-11	515	4-12	48
4	6-676	616	7-715	711/16	5-2	5 <u>3</u>		6-8	611	7-916	73	5-4	5 5	4	6-95	613	7-10%	77	5-6	5 2
5	8-2	83/16	9-615	99	6-52	676		8-4	85	9-85	93	6-8	616	5	8-6	81/2	9-103	97	6-10=	67
6	9-98	918	11-515	11/2	7-9	734	6	10-0	10	11-715	11116	8-0	8	6	10-27	10%	11-10	113	8-3	84
7	11-54	117	13-47	-   <del>7</del>	9-0늘	916	7	11-8	1111	13-74	1-18	9-4	95	7	11-10-19	115	13-9#	-   <del>13</del>	9-72	95
8	13-013	1-116	15-37	1-35	10-4	10%	8	13-4	-   <del>5</del>	15-65	1-3%	10-8	1016	8	13-74	1-18	15-9 <del>8</del>	1-33	11-0	11
9	14-87	1-211	17-27	1-54	11-71	115	9	15-0	1-3	17-515	1-51/2	12-0	1-0	9	15-35	1-35		1-53/4	12-42	1-03
10	16-4	1-45	19-17	1-73	12-11	1-015	10	16-8	1-4116	19-54	1-77	13-4	1-1 <u>5</u>	10	17-0	1-5	19-816	1-73	13-9	1-13
	17-115	1-6	21-013	1-916	14-21/2	1-23	11	18-4	1-65	21-4%	1-93	14-8	1-211	Ш	18-87	1-611	21-83	1-916	15-12	1-38
12	19-74	1-75	22-1113	1-11	15-6	1-3½	12	20-0	1-8	23-37	1-115	16-0	1-4	_	20-413	1-87	23-816	1-11116	16-6	1-42
13	21-213		24-1013		16-9늘		13	21-8		25-34		17-4		_	22-14		25-716		17-10=	
14	22-107		26-93		18-1		14	23-4		27-276		18-8		_	23-95		27-73		19-3	
15	24-616		28-83		19-42		15	25-0		29-13		20-0		15	25-616		29-716		20-71	
121 18 21 24	ABLE O	RS 201 RS 273 RS 314 RS 341 RS 415	ING 3/16" /4" 4" 1/16"	17/24	Rise Pitch		16 16	ABLE O 2" CENTE 5" CENTE 5" CENTE 0" CENTE 4" CENTE	RS 217	4 " 16" (8 " /8 "	35/48	Rise Pitch S	<b>17½</b> 55°34′	12 16 18 20 24	" CENTE " CENTE " CENTE " CENTE	RS 287 RS 287 RS 327 RS 367 RS 437	/8" /8" /16" /16"	3/4	Rise Pitch 5	18" 56°19'
<b>Annual</b>		N AND	HIP	AND	TOTA	LRISE	BUN		N AND	HIP	AND	TOTAL	RISE	DIIN	COMMO JACK R	N AND	HIP /	AND		DISE
	Feet	Inches			F . 1												VAL	EY	TOTAL	. KISE
4		11 TC I TC 2	Feet	Inches	Feet	Inches		Feet	Inches	Feet	Inches	Feet	Inches		Feet	Inches	Feet	EY	Feet	
1/2		16	Feet	Inches	Feet	Inches	1/4		7 16	Feet		Feet	Inches	1/4	Feet	Inches 7 16	Feet	Inches		
		7 8		1/2	Feet	Inches	1/4		7 16 7 8	Feet	Inches	Feet	Inches	1/4	Feet	17 16 15 16	Feet	Inches   1   2   1   1   1   1   1   1   1   1		
3/4	1 913	7 8 5 6		1 1 1 1 2			1/4 1/2 3/4		7 8 7 8 5 1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		1			1/4	Feet	15 15 16 15 16 18 18	Feet	Inches   1   2   1   6   1	Feet	Inches
1	1-813	78 516	2-0	1 1 1 <del>2</del> 2	1-5	17/16	1/4 1/2 3/4	1-94	7 16 7 8 5 16 13 4	2-038	lnches $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	1-5½	17/16	1/4 1/2 34	1-958	15 15 18 13 16	2-0 <sup>3</sup> / <sub>4</sub>	1   1   1   1   1   1   1   1   1   1	Feet	inche:
1	$3-5\frac{5}{8}$	1 16 1 3 16 3 16 3 16	2-0 4-01/16	1   1   2   2   4	1-5	1/16   2/13/16	1/4 1/2 3/4 1 2	1-94	7 8 15 16 13 4 316	2-0 <sup>3</sup> / <sub>8</sub>	Inches   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{1}{16}$   $\frac{4}{16}$   $\frac{1}{16}$	1-5½ 2-11	17   16   2   15   16	1/4 1/2 34 1 2	1-9\frac{5}{8}	15  6     3  8     3  8     3  8     3  8	2-03/4 4-12	1   1   1   1   1   1   1   1   1   1	I-6 3-0	lnches
2 3	$3-5\frac{5}{8}$ $5-2\frac{7}{16}$	3 1 1 6 5 3 1 6 5 3 1 6 5 3 1 6 5 1 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2-0 4-016 6-016	1 1 1 <sup>1</sup> / <sub>2</sub> 2 4 6	1-5 2-10 4-3	1 7 16 2 13 16 4 1 4 1 4	1/4 1/2 3/4 1 2 3	1-94 3-67 5-3116	7 18 7 8 15 16 13 4 9 16 5 18 5 18 6 18 18 18 18 18 18 18 18 18 18 18 18 18	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1 <sup>1</sup> / <sub>8</sub>	Inches   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{1}{6}$   $\frac{1}{8}$   $\frac{1}{$	1-5½ 2-11 4-4½	17/16   2/15/16   43/8	1/4 1/2 3/4 1 2 3	1-9\frac{5}{8} 3-7\frac{1}{4} 5-4\frac{7}{8}	15 16 13 16 3 5 8 5 7 16	2-0 <sup>3</sup> / <sub>4</sub> 4-1 <sup>1</sup> / <sub>2</sub> 6-2 <sup>1</sup> / <sub>4</sub>	$ \begin{array}{c c}                                    $	1-6 3-0 4-6	lnches $\begin{vmatrix} \frac{1}{2} \\ \frac{3}{2} \end{vmatrix}$
2 3 4	3-5\frac{5}{8} 5-2\frac{7}{16} 6-11\frac{1}{4}	7 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2-0 4-016 6-016 8-016	1 1 ½ 2 2 4 6 8	1-5 2-10 4-3 5-8	1 7/16 2 13/16 4 1/4 5 11/16	1/4 1/2 3/4 1 2 3 4	1-9 <sup>1</sup> / <sub>4</sub> 3-6 <sup>7</sup> / <sub>16</sub> 5-3 <sup>1</sup> / <sub>16</sub> 7-0 <sup>7</sup> / <sub>8</sub>	7 16 7 8 15 16 13 4 3 16 5 16 5 16 7 16 7 16 7 16 16 16 16 16 16 16 16 16 16 16 16 16	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1 <sup>1</sup> / <sub>8</sub> 8-1 <sup>1</sup> / <sub>2</sub>	$\begin{array}{c c} & \text{Inches} \\ & \frac{1}{2} \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ & \\ $	1-5½ 2-11 4-4½ 5-10	17/16 215/16 43/8 5/16	1/4 1/2 3/4 1 2 3 4	1-9\frac{5}{8} 3-7\frac{1}{4} 5-4\frac{3}{8} 7-2\frac{9}{16}	Inches   7   16   15   16   18   18   18   19   19   19   19   19	2-0 <sup>3</sup> / <sub>4</sub> 4-1 <sup>1</sup> / <sub>2</sub> 6-2 <sup>1</sup> / <sub>16</sub>	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0	lnches $ \begin{vmatrix} \frac{1}{2} \\ 3 \\ 4\frac{1}{2} \end{vmatrix} $
1 2 3 4 5	3-5\\\ 5-2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	7 8 156 134 376 536 615 616 816	2-0 4-0 ½ 6-0 ½ 8-0 ½ 10-0 ½	1/2   1   1/2   2   4   6   8   10	1-5 2-10 4-3 5-8 7-1	17/6 21/3 41/4 51/6 71/6	1/4 1/2 3/4 1 2 3 4 5	1-9¼ 3-6½ 5-3½ 7-0⅓ 8-10⅓	7 16 7 8 15 16 13 4 3 9 16 5 5 16 7 16 8 8 8	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1 <sup>1</sup> / <sub>8</sub> 8-1 <sup>1</sup> / <sub>2</sub> 10-1 <sup>7</sup> / <sub>8</sub>	$\begin{array}{c c} & & & \\ \hline & \frac{1}{2} \\ & & \\ \hline & & \\ \hline$	$   \begin{array}{c}     1-5\frac{1}{2} \\     2-11 \\     4-4\frac{1}{2} \\     5-10 \\     7-3\frac{1}{2}   \end{array} $	176 215 438 516 756	1/4 1/2 3/4 1 2 3 4 5	1-9\frac{5}{8} 3-7\frac{1}{4} 5-4\frac{7}{8} 7-2\frac{9}{16} 9-0\frac{3}{16}	15   16   18   18   18   18   18   18   18	2-0 <sup>3</sup> / <sub>4</sub> 4-1 <sup>1</sup> / <sub>2</sub> 6-2 <sup>1</sup> / <sub>16</sub> 8-2 <sup>15</sup> / <sub>16</sub>	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0 7-6	$\frac{1\frac{1}{2}}{3}$   $\frac{3}{4\frac{1}{2}}$   $\frac{6}{7\frac{1}{2}}$
1 2 3 4 5 6	3-5\\\ 5-2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2-0 4-01/6 6-01/6 8-01/6 10-01/8 12-01/8	1/2   1   1/2   2   4   6   8   10   1-0	1-5 2-10 4-3 5-8 7-1 8-6	$ \begin{array}{c c}  & 1\frac{7}{16} \\  & 2\frac{13}{16} \\  & 4\frac{1}{4} \\  & 5\frac{11}{16} \\  & 7\frac{1}{16} \\  & 8\frac{1}{2} \end{array} $	1/4 1/2 3/4 1 2 3 4 5 6	1-9 <sup>1</sup> / <sub>4</sub> 3-6 <sup>7</sup> / <sub>6</sub> 5-3 <sup>11</sup> / <sub>6</sub> 7-0 <sup>7</sup> / <sub>8</sub> 8-10 <sup>1</sup> / <sub>8</sub> 10-7 <sup>1</sup> / <sub>6</sub>	7 16 7 8 15 16 16 16 16 16 16 16 16 16 16 16 16 16	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1 <sup>1</sup> / <sub>8</sub> 8-1 <sup>1</sup> / <sub>2</sub> 10-1 <sup>7</sup> / <sub>8</sub> 12-2 <sup>1</sup> / <sub>4</sub>	Inches	$     \begin{vmatrix}         1 - 5\frac{1}{2} \\         2 - 11 \\         4 - 4\frac{1}{2} \\         5 - 10 \\         7 - 3\frac{1}{2} \\         8 - 9 $	176 256 438 516 756 834	1/4 1/2 3/4 1 2 3 4 5 6	1-9\frac{5}{8} 3-7\frac{1}{4} 5-4\frac{7}{8} 7-2\frac{9}{16} 9-0\frac{3}{16} 10-9\frac{13}{16}	15   18   13   18   19   19   19   19   19   19   19	2-0 <sup>3</sup> / <sub>4</sub> 4-1 <sup>1</sup> / <sub>2</sub> 6-2 <sup>1</sup> / <sub>16</sub> 8-2 <sup>15</sup> / <sub>16</sub> 10-3 <sup>11</sup> / <sub>16</sub> 12-4 <sup>7</sup> / <sub>16</sub>	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0 7-6 9-0	$\frac{1}{2}$   $$
1 2 3 4 5 6 7	3-5\\\ 5-2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	156 156 156 134 376 536 516 616 816 1076 1-018	2-0 4-0 \frac{1}{16} 6-0 \frac{1}{16} 8-0 \frac{1}{16} 10-0 \frac{1}{8} 12-0 \frac{1}{8} 14-0 \frac{1}{8}	1/2   1   1/2   2   4   6   8   10   1-0   1-2	1-5 2-10 4-3 5-8 7-1 8-6 9-11	176 2136 44 516 716 812 915	1/4 1/2 3/4 1 2 3 4 5 6 7	1-9¼ 3-6½ 5-3½ 7-0⅓ 8-10⅓ 10-7½ 12-4⅙	7 16 7 8 15 16 16 16 16 16 16 16 16 16 16 16 16 16	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1 <sup>1</sup> / <sub>8</sub> 8-1 <sup>1</sup> / <sub>2</sub> 10-1 <sup>7</sup> / <sub>8</sub> 12-2 <sup>1</sup> / <sub>4</sub> 14-2 <sup>5</sup> / <sub>8</sub>	Inches	1-5½ 2-11 4-4½ 5-10 7-3½ 8-9	176 2156 438 516 756 834 1036	1/4 1/2 3/4 1 2 3 4 5 6 7	1-958 3-74 5-478 7-276 9-036 10-9136 12-776	15   16   18   18   18   18   18   18   18	2-0 <sup>3</sup> / <sub>4</sub> 4-1 <sup>1</sup> / <sub>2</sub> 6-2 <sup>1</sup> / <sub>4</sub> 8-2 <sup>15</sup> / <sub>16</sub> 10-3 <sup>11</sup> / <sub>16</sub> 12-4 <sup>16</sup> / <sub>16</sub> 14-5 <sup>3</sup> / <sub>16</sub>	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0 7-6 9-0	$ \begin{array}{c}   1 \\   2 \\   3 \\   4 \\   2 \\   6 \\   7 \\   2 \\   9 \\   10 \\   2 \\   10 \\   2 \\   2 \\   3 \\   4 \\   4 \\   4 \\   5 \\   6 \\   7 \\   6 \\   7 \\   7 \\   7 \\   9 \\   10 \\   1 \\   2 \\   9 \\   10 \\   1 \\   2 \\   1 \\   1 \\   2 \\   3 \\   4 \\   4 \\   4 \\   4 \\   5 \\   5 \\   6 \\   7 \\ $
1 2 3 4 5 6 7 8	3-5\frac{5}{8} 5-2\frac{1}{16} 6-11\frac{1}{4} 8-8\frac{1}{16} 10-4\frac{7}{8} 12-1\frac{1}{16} 13-10\frac{1}{2}	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2-0 4-0 <sup>1</sup> / <sub>16</sub> 6-0 <sup>1</sup> / <sub>16</sub> 8-0 <sup>1</sup> / <sub>16</sub> 10-0 <sup>1</sup> / <sub>8</sub> 12-0 <sup>1</sup> / <sub>8</sub> 14-0 <sup>1</sup> / <sub>8</sub>	1/2   1/2   2   4   6   8   10   1-0   1-2   1-4   1	1-5 2-10 4-3 5-8 7-1 8-6 9-11 11-4	176 2136 414 516 716 812 915 915 1156	1/4 1/2 3/4 1 2 3 4 5 6 7 8	1-94 3-66 5-316 7-08 8-108 10-75 12-46 12-46	7 16 7 8 15 16 16 16 16 16 16 16 16 16 16 16 16 16	$ \begin{array}{c} 2 - 0\frac{3}{8} \\ 4 - 0\frac{3}{4} \\ 6 - 1\frac{1}{8} \\ 8 - 1\frac{1}{2} \\ 10 - 1\frac{7}{8} \\ 12 - 2\frac{1}{4} \\ 14 - 2\frac{5}{8} \\ 16 - 3 \end{array} $	Inches   1/2   2   1   1/2   2   1/6   6   8   8   8   8   10   3/6   1 - 0   3/6   1 - 2   1/4   1 - 4   1   1 - 4   1   1   4   1   1   4   1   1   4   1   1	1-5½ 2-11 4-4½ 5-10 7-3½ 8-9 10-2½ 11-8	17 16 215 16 43 516 75 16 83 4 103 16 11 11 16	1/4 1/2 3/4 1 2 3 4 5 6 7 8	1-958 3-74 5-478 7-296 9-036 10-913 12-776 14-516	Triches	2-0 <sup>3</sup> / <sub>4</sub> 4-1 <sup>1</sup> / <sub>2</sub> 6-2 <sup>1</sup> / <sub>4</sub> 8-2 <sup>15</sup> / <sub>16</sub> 10-3 <sup>11</sup> / <sub>16</sub> 12-4 <sup>7</sup> / <sub>16</sub> 14-5 <sup>3</sup> / <sub>16</sub> 16-5 <sup>15</sup> / <sub>16</sub>	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0	$ \begin{array}{c}   \frac{1}{2} \\   \frac{1}{2} \\   3 \\   4 \frac{1}{2} \\   6 \\   7 \frac{1}{2} \\   9 \\   10 \frac{1}{2} \\   1-0 \\ \end{array} $
1 2 3 4 5 6 7 8 9	$3-5\frac{5}{8}$ $5-2\frac{7}{16}$ $6-11\frac{1}{4}$ $8-8\frac{1}{16}$ $10-4\frac{7}{8}$ $12-1\frac{11}{16}$ $13-10\frac{1}{2}$ $15-7\frac{1}{4}$	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 2\text{-}0 \\ 4\text{-}0\frac{1}{16} \\ 6\text{-}0\frac{1}{16} \\ 8\text{-}0\frac{1}{16} \\ 10\text{-}0\frac{1}{8} \\ 12\text{-}0\frac{1}{8} \\ 14\text{-}0\frac{1}{8} \\ 16\text{-}0\frac{3}{16} \\ 18\text{-}0\frac{3}{16} \end{array}$	1/2   1/2   2   4   6   8   10   1-0   1-2   1-4   1-6	1-5 2-10 4-3 5-8 7-1 8-6 9-11 11-4 12-9		1/4 1/2 3/4 1 2 3 4 5 6 7 8	1-9¼ 3-6½ 5-3¼ 7-0⅓ 8-10⅓ 10-7⅙ 12-4⅙ 14-1¾ 15-11	7 16 7 18 15 16 15 16 16 16 16 16 16 16 16 16 16 16 16 16	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1 <sup>1</sup> / <sub>8</sub> 8-1 <sup>1</sup> / <sub>2</sub> 10-1 <sup>7</sup> / <sub>8</sub> 12-2 <sup>1</sup> / <sub>4</sub> 14-2 <sup>5</sup> / <sub>8</sub> 16-3 18-3 <sup>3</sup> / <sub>8</sub>	Inches   1-2   1   1-2   1   1-2   1   1-4   1-4   1-6   16   1   1-6   16   1   1-6   16   1	1-5½ 2-11 4-4½ 5-10 7-3½ 8-9 10-2½ 11-8 13-1½	17   16   2   15   16   16   16   16   16   16   16	1/4 1/2 3/4 1 2 3 4 5 6 7 8	1-9\\\ 3-74\\ 5-4\\\\ 7-2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Triches	2-034 4-1½ 6-2¼ 8-2½ 8-2½ 10-3½ 12-4½ 14-5¾ 14-5¾ 18-6⅓ 18-6⅓	Inches	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0 13-6	$ \begin{array}{c c}  & 1\frac{1}{2} \\ 3 & 4\frac{1}{2} \\ 6 & 7\frac{1}{2} \\ 9 & 10\frac{1}{2} \\ 1-0 & 1-1\frac{1}{2} \end{array} $
1 2 3 4 5 6 7 8 9	$\begin{array}{c} 3-5\frac{5}{8} \\ 5-2\frac{7}{16} \\ 6-11\frac{1}{4} \\ 8-8\frac{1}{16} \\ 10-4\frac{7}{8} \\ 12-1\frac{11}{16} \\ 13-10\frac{1}{2} \\ 15-7\frac{1}{4} \\ 17-4\frac{1}{16} \end{array}$	1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2-0 4-0 \frac{1}{16} 6-0 \frac{1}{16} 8-0 \frac{1}{16} 10-0 \frac{1}{8} 12-0 \frac{1}{8} 14-0 \frac{3}{16} 18-0 \frac{3}{16} 20-0 \frac{3}{16}	1/2   1/2   2   4   6   8   10   1-0   1-2   1-4   1-6   1-8   1	1-5 2-10 4-3 5-8 7-1 8-6 9-11 11-4 12-9 14-2	1 \frac{7}{16}	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10	1-9 <sup>1</sup> / <sub>4</sub> 3-6 <sup>7</sup> / <sub>6</sub> 5-3 <sup>1</sup> / <sub>16</sub> 7-0 <sup>7</sup> / <sub>8</sub> 8-10 <sup>1</sup> / <sub>8</sub> 10-7 <sup>5</sup> / <sub>6</sub> 12-4 <sup>7</sup> / <sub>16</sub> 14-1 <sup>3</sup> / <sub>4</sub> 15-11 17-8 <sup>3</sup> / <sub>6</sub>	7 16 7 8 15 16 5 5 16 8 8 10 5 8 1 - 2 1 8 1 - 3 16 1 - 3 16 1 - 5	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1/ <sub>8</sub> 8-1/ <sub>2</sub> 10-1/ <sub>8</sub> 12-2/ <sub>4</sub> 14-2/ <sub>8</sub> 16-3 18-3/ <sub>8</sub> 20-3/ <sub>4</sub>	Inches   1/2   1   1/2   2   1/6   6   8   8   8   10   3/6   1   -0   3/6   1   -0   4/4   1   -6   5/6   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1   -8   1	1-5½ 2-11 4-4½ 5-10 7-3½ 8-9 10-2½ 11-8 13-1½ 14-7	176   215   156	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9	1-9\\\ 3-7\\\\ 5-4\\\\ 7-2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Triches   Tric	2-034 4-12 6-24 8-2156 10-316 12-416 14-516 18-68 18-68 20-78	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0 13-6 15-0	$ \begin{array}{c}  \frac{1}{2}  \\ 3 \\ 4 \\ 6 \\ 7 \\ 10 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 3 \end{array} $
1 2 3 4 5 6 7 8 9 10	3-5\\\ 5-2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2-0 4-0 \( \frac{1}{16} \) 6-0 \( \frac{1}{16} \) 8-0 \( \frac{1}{16} \) 10-0 \( \frac{1}{8} \) 12-0 \( \frac{1}{8} \) 16-0 \( \frac{3}{16} \) 18-0 \( \frac{3}{16} \) 22-0 \( \frac{1}{4} \)	1/2   1/2   2   4   6   8   10   1-0   1-2   1-4   1-6   1-8   1-10	1-5 2-10 4-3 5-8 7-1 8-6 9-11 11-4 12-9 14-2 15-7	176   2136   414   516	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10	1-94 3-66 5-316 7-07 8-101 10-75 12-47 12-47 14-14 15-11 17-83 19-57 19-57	7 16 7 16 16 16 16 16 16 16 16 16 16 16 16 16	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1 <sup>1</sup> / <sub>8</sub> 8-1 <sup>1</sup> / <sub>2</sub> 10-1 <sup>7</sup> / <sub>8</sub> 12-2 <sup>1</sup> / <sub>4</sub> 14-2 <sup>5</sup> / <sub>8</sub> 16-3 18-3 <sup>3</sup> / <sub>8</sub> 20-3 <sup>3</sup> / <sub>4</sub> 22-4 <sup>3</sup> / <sub>16</sub>	Inches   -  -  -  -  -  -  -  -  -  -  -  -  -	$     \begin{array}{c}                                     $	176 215 215 16 438 5136 756 834 1036 11116 1-18 1-26 1-26	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10	1-9\frac{5}{8} 3-7\frac{1}{4} 5-4\frac{7}{8} 7-2\frac{9}{16} 10-9\frac{13}{16} 12-7\frac{1}{16} 14-5\frac{1}{16} 18-0\frac{5}{16} 19-10	Triches	2-0 <sup>3</sup> / <sub>4</sub> 4-1 <sup>1</sup> / <sub>2</sub> 6-2 <sup>1</sup> / <sub>4</sub> 8-2 <sup>15</sup> / <sub>6</sub> 10-3 <sup>1</sup> / <sub>6</sub> 12-4 <sup>1</sup> / <sub>6</sub> 14-5 <sup>3</sup> / <sub>6</sub> 16-5 <sup>15</sup> / <sub>6</sub> 18-6 <sup>5</sup> / <sub>8</sub> 20-7 <sup>3</sup> / <sub>8</sub> 22-8 <sup>1</sup> / <sub>8</sub>	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0 13-6 15-0 16-6	$\begin{array}{c}  \frac{1}{2}  \\  \frac{1}{2}  \\$
1 2 3 4 5 6 7 8 9 10 11 12	3-5\\\ 5-2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1-18 1-7 16 1-7 16 1-7 16 1-7 16 1-7 16 1-7 16 1-7 16 1-7 16 1-7 16 1-7 16 1-8 16 1-8 16 1-8 16 1-8 16 1-8 16 1-8 16 1-8 16 16 1-8 16 16 16 16 16 16 16 16 16 16 16 16 16	2-0 4-0 \frac{1}{16} 6-0 \frac{1}{16} 8-0 \frac{1}{16} 10-0 \frac{1}{8} 12-0 \frac{1}{8} 14-0 \frac{3}{16} 18-0 \frac{3}{16} 20-0 \frac{3}{16} 22-0 \frac{1}{4} 24-0 \frac{1}{4}	1/2   1/2   2   4   6   8   10   1-0   1-2   1-4   1-6   1-8   1-10	1-5 2-10 4-3 5-8 7-1 8-6 9-11 11-4 12-9 14-2 15-7 17-0	1 \frac{7}{16}	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12	1-94 3-66 5-316 7-08 8-108 10-76 12-46 12-46 12-46 15-11 17-86 19-56 19-56 21-28	7 16 7 16 15 16 16 16 16 16 16 16 16 16 16 16 16 16	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1 <sup>1</sup> / <sub>8</sub> 8-1 <sup>1</sup> / <sub>2</sub> 10-1 <sup>7</sup> / <sub>8</sub> 12-2 <sup>1</sup> / <sub>4</sub> 14-2 <sup>5</sup> / <sub>8</sub> 16-3 18-3 <sup>3</sup> / <sub>8</sub> 20-3 <sup>3</sup> / <sub>4</sub> 22-4 <sup>1</sup> / <sub>16</sub> 24-4 <sup>1</sup> / <sub>16</sub>	Inches   1/2   1   1/2   2   1/6   6   8   8   10   3/6   1   2   4   4   4   4   4   4   4   4   4	$   \begin{array}{c cccccccccccccccccccccccccccccccccc$	176   2   5   6   6   6   6   6   6   6   6   6	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12	1-9\frac{5}{8} 3-7\frac{1}{4} 5-4\frac{7}{8} 7-2\frac{7}{16} 10-9\frac{13}{16} 12-7\frac{7}{16} 14-5\frac{1}{16} 18-0\frac{5}{16} 19-10 21-7\frac{5}{8}	Triches	2-0 <sup>3</sup> / <sub>4</sub> 4-1 <sup>1</sup> / <sub>2</sub> 6-2 <sup>1</sup> / <sub>4</sub> 8-2 <sup>15</sup> / <sub>16</sub> 10-3 <sup>11</sup> / <sub>16</sub> 14-5 <sup>3</sup> / <sub>16</sub> 14-5 <sup>3</sup> / <sub>16</sub> 16-5 <sup>15</sup> / <sub>16</sub> 18-6 <sup>5</sup> / <sub>8</sub> 20-7 <sup>3</sup> / <sub>8</sub> 22-8 <sup>1</sup> / <sub>8</sub> 24-8 <sup>7</sup> / <sub>8</sub>	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0 13-6 15-0 16-6 18-0	$ \begin{array}{c c}  & 1\frac{1}{2} \\ 3 & 4\frac{1}{2} \\ 6 & 7\frac{1}{2} \\ 9 & 10\frac{1}{2} \\ 1-0 & 1-1\frac{1}{2} \end{array} $
1 2 3 4 5 6 7 8 9 10 11 12 13	3-5 \$\frac{1}{6}\$ 5-2 \$\frac{1}{16}\$ 6-11 \$\frac{1}{4}\$ 8-8 \$\frac{1}{16}\$ 10-4 \$\frac{7}{8}\$ 12-1 \$\frac{1}{16}\$ 13-10 \$\frac{1}{2}\$ 15-7 \$\frac{1}{4}\$ 17-4 \$\frac{1}{16}\$ 19-0 \$\frac{7}{8}\$ 20-9 \$\frac{1}{16}\$ 22-6 \$\frac{1}{2}\$	1 - 3 - 8 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 7 - 8 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 8 - 7 - 7 - 6 - 8 - 7 - 8 - 8 - 7 - 7 - 6 - 8 - 8 - 7 - 7 - 6 - 8 - 8 - 7 - 7 - 6 - 8 - 8 - 7 - 7 - 6 - 8 - 8 - 7 - 7 - 6 - 8 - 8 - 8 - 8 - 8 - 8 - 8 - 8 - 8	2-0 4-0 \frac{1}{16} 6-0 \frac{1}{16} 8-0 \frac{1}{16} 10-0 \frac{1}{8} 12-0 \frac{1}{8} 14-0 \frac{3}{16} 18-0 \frac{3}{16} 20-0 \frac{3}{16} 22-0 \frac{1}{4} 24-0 \frac{1}{4} 26-0 \frac{1}{4}	1/2   1/2   2   4   6   8   10   1-0   1-2   1-4   1-6   1-8   1-10   2-0	1-5 2-10 4-3 5-8 7-1 8-6 9-11 11-4 12-9 14-2 15-7 17-0 18-5	176   2136   414   516	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13	1-9¼ 3-6¼ 5-3¼ 5-3¼ 6-7-0⅓ 8-10½ 10-7⅓ 10-7⅙ 14-1¾ 15-11 17-8⅙ 19-5⅙ 21-2ౖ 21-2ౖ 22-11⅙ 23-6%	7 16 7 8 15 16 1 7 16 1	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1/ <sub>8</sub> 8-1/ <sub>2</sub> 10-1 <sup>7</sup> / <sub>8</sub> 12-2/ <sub>4</sub> 14-2 <sup>5</sup> / <sub>8</sub> 16-3 18-3 <sup>3</sup> / <sub>8</sub> 20-3 <sup>3</sup> / <sub>4</sub> 22-4 <sup>3</sup> / <sub>16</sub> 24-4 <sup>7</sup> / <sub>16</sub> 26-4 <sup>1</sup> / <sub>5</sub>	Inches   1/2   1   1/2   2   1/6   6   8   8   8   10   3/6   1   -0   3/6   1	1-5½ 2-11 4-4½ 5-10 7-3½ 8-9 10-2½ 11-8 13-1½ 14-7 16-0½ 17-6 18-11½	176   2   5   6   6   6   6   6   6   6   6   6	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13	1-9\frac{5}{8} 3-7\frac{1}{4} 5-4\frac{7}{8} 7-2\frac{9}{16} 10-9\frac{13}{16} 12-7\frac{7}{16} 14-5\frac{16}{16} 18-0\frac{7}{16} 19-10 21-7\frac{5}{8} 23-5\frac{1}{4}	Triches	2-034 4-12 6-24 8-2156 10-316 12-416 12-416 14-536 18-658 20-78 22-818 24-88 24-88 26-98	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0 13-6 15-0 16-6 18-0 19-6	$ \begin{array}{c}                                     $
1 2 3 4 5 6 7 8 9 10 11 12 13	3-5\\\ 5-2\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -	2-0 4-0 \frac{1}{16} 6-0 \frac{1}{16} 8-0 \frac{1}{16} 10-0 \frac{1}{8} 12-0 \frac{1}{8} 14-0 \frac{3}{16} 18-0 \frac{3}{16} 20-0 \frac{3}{16} 22-0 \frac{1}{4} 24-0 \frac{1}{4}	1/2   1   1/2   2   4   6   8   10   1-0   1-2   1-4   1-6   1-8   1-10   2-0   2-0	1-5 2-10 4-3 5-8 7-1 8-6 9-11 11-4 12-9 14-2 15-7 17-0	176   2136   414   516	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13 14	1-94 3-66 5-316 7-08 8-108 10-76 12-46 12-46 12-46 15-11 17-86 19-56 19-56 21-28	7 167 78 156 156 17 166	2-0 <sup>3</sup> / <sub>8</sub> 4-0 <sup>3</sup> / <sub>4</sub> 6-1 <sup>1</sup> / <sub>8</sub> 8-1 <sup>1</sup> / <sub>2</sub> 10-1 <sup>7</sup> / <sub>8</sub> 12-2 <sup>1</sup> / <sub>4</sub> 14-2 <sup>5</sup> / <sub>8</sub> 16-3 18-3 <sup>3</sup> / <sub>8</sub> 20-3 <sup>3</sup> / <sub>4</sub> 22-4 <sup>1</sup> / <sub>16</sub> 24-4 <sup>1</sup> / <sub>16</sub>	Inches   1/2   2   1   1/2   2   1/6   6   8   8   8   10   3/6   1   -0   1/6   1   1   -0   1/6   1   1   -0   1/6   1   1   -0   1/6   1   1   -0   1/6   1   1   1   1   1   1   1   1   1	$   \begin{array}{c cccccccccccccccccccccccccccccccccc$	$\begin{array}{c} 1_{16}^{7} \\ 2_{15}^{15} \\ 2_{16}^{15} \\ 4_{38}^{3} \\ 5_{16}^{13} \\ 7_{16}^{5} \\ 8_{34}^{3} \\ 10_{36}^{16} \\ 1_{16}^{11} \\ 1_{16}^{16} \\ 1_{16}^{1} \\ 1_{1$	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13 14	1-9\frac{5}{8} 3-7\frac{1}{4} 5-4\frac{7}{8} 7-2\frac{7}{16} 10-9\frac{13}{16} 12-7\frac{7}{16} 14-5\frac{1}{16} 18-0\frac{5}{16} 19-10 21-7\frac{5}{8}	Triches	2-0 <sup>3</sup> / <sub>4</sub> 4-1 <sup>1</sup> / <sub>2</sub> 6-2 <sup>1</sup> / <sub>4</sub> 8-2 <sup>15</sup> / <sub>16</sub> 10-3 <sup>11</sup> / <sub>16</sub> 14-5 <sup>3</sup> / <sub>16</sub> 14-5 <sup>3</sup> / <sub>16</sub> 16-5 <sup>15</sup> / <sub>16</sub> 18-6 <sup>5</sup> / <sub>8</sub> 20-7 <sup>3</sup> / <sub>8</sub> 22-8 <sup>1</sup> / <sub>8</sub> 24-8 <sup>7</sup> / <sub>8</sub>	1   1   1   1   1   1   1   1   1   1	1-6 3-0 4-6 6-0 7-6 9-0 10-6 12-0 13-6 15-0 16-6 18-0	$ \begin{array}{c}                                     $

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								RO	OF		TA	BLE	S							
1200	ABLE 0	RS 221 RS 291 RS 331 RS 361 RS 44	/16" /16" /16" /4" /8"		Rise Pitch	<b>18½</b> " 57°2'	12 16 16 26 26	ABLE O	RS 22 RS 30 RS 33 RS 37 RS 45	3/4"	19/24	Rise Pitch	. <b>19</b> " 57 <b>°</b> 44'	13	ABLE O	F SPAC RS 22 RS 30 RS 34 RS 38 RS 45	ING 1/8" 1/2" 5/16" 1/8"	39/48	Rise Pitch	1 <b>9½</b> 58°24
	JACK R	AFTERS	VAL	AND		LRISE	ELIN	JACK R	AFTERS	HIP			LRISE	21/4	JACK R	N AND	HIP	AND	TOTA	LRISE
1/4	Feet	Inches	Feet	Inches	Feet	Inches	1/	Feet	Inches	Feet	inches	Feet	Inches			Inches		Inches	Feet	Inches
12	-	16		2		-	1/4		15		2			14		15		16		
1/2		15		16			1/2		16		116			1/2		16		116		
4	1 101	13/8		116	-		34		13/8		19			34		17/16		15/8		L.
<u>_</u>	1-101	113		2 1/8	1-62	19/16	L	1-10=	17/8		2 1/8	1-7	19/16	1	1-107	15		23/16		18
2	3-8\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	311		436		316	2	3-815	33/4	4-215	44	3-2	3 3 16	2	3-913	313		45		32
3	5-68	51/2	6-315	64	4-7=	45/8	3	5-77	5 <del></del> 8	6-47	6 <del>3</del>	4-9	43/4	3	5-816	53	6-5%	676	4-10=	43
4	7-43	73	8-47	83	6-2	63	4	7-57	7=	8-57	81/2	6-4	65	4	7-79	75	8-73	85	6-6	62
5	9-24	93/16	10-5=	107	7-8=	711	5	9-43	93	10-73	10 8	7-11	715	5	9-6=	916	10-94	103	8-12	8
6	11-016		12-6=	1-0%	9-3	91	6	11-213	114	12-87	1-03/4	9-6	9늘	6	11-53	117	12-11=	1-015	9-9	93
7	12-103	1-03	14-73	1-2 <u>-5</u>	10-9%	1013	7	13-15	1-18	14-10 5	1-27	11-1	1116	7	13-44	-   <del>3</del> 8	15-015		11-4-	118
රී	14-87	1-211	16-813	$1-4\frac{3}{4}$	12-4	1-05	δ	14-113	1-3	16-1113	1-5	12-8	1-011	8	$15-3\frac{3}{16}$	1-34	17-213	1-54	13-0	1-1
9	16-67	1-49	18-915	1-613	13-10-	1-178	9	16-101	1-47/8	19-15	1-71/8	14-3	1-21	9	17-216	1-53/16	19-45	1-73	14-71	1-25
10	18-41/2	1-63	20-11-6	1-815	15-5	1-37	10	18-83	1-63/4	21-23	1-94	15-10	1-313	10	19-015	1-716	21 01	1-97		1-44
П	20-29	1-83		1-11	16-11=	1-415	_	20-7ء	1-85	23-44	1-113	17-5	1-57	=	20-11 7	1-9	23-83	1-1116		1-5
12	22-0\}	1-1016		2-11/8		1-61	12	22-516	1-10=	25-5#	2-12	19-0	1-7	=	22-103	1-1078	25-10 is	2-17	19-6	1-71
13	23-1016	1 1018	27-23	- 18	20-01	1 02	_	24-4=	1 102	27-7:	L 12	20-7		_	24-95	1 10 8	28-016		21-1=	1 12
IΔ	25-816		29-3=		21-7		_	26-25		29-811		22-2		=	26-89		30-13		22-9	
15	27-63		31-4%		23-12		_	28-116		31-10 h		23-9		_	28-77		32-33		24-4=	
=	ABLE OF	SDACI				2011			CDAC				11							0.11
18 20 24	CENTE CENTE CENTE CENTE	RS 235/ RS 311/ RS 35	16"	5/6	Pitch 5	20"	12	ABLE OF	DS 233	ING		Rise	(()1/2		TABLE OF SPACING 12" CENTERS 24"/16" 18" CENTERS 32 4/4" 18" CENTERS 36 5/16" 20" CENTERS 40 5/16" 22" CENTERS 40 5/16" 24" CENTERS 48 8"					
		RS 387 RS 465	3" 3"			776	18 24	" CENTEL " CENTEL " CENTEL " CENTEL	RS 359 RS 399 RS 477	16" 16" 2"	41/48	Pitch !		12 16 18 20 24	CENTE CENTE CENTE CENTE	RS 243, RS 321, RS 365, RS 405, RS 483,	/16" /4" /16" /16"	7/8		
RAFFE.	COMMO JACK R	N AND	S"	AND	TOTAL	RISE	18 24	" CENTE " CENTE " CENTE " CENTE COMMON JACK RA	N AND	HIP VALL	MD		59°39'	12 16 18 20 24	CENTE CENTE CENTE CENTE	RS 243 RS 321 RS 365 RS 405 RS 483	/16" /4" /16" /16"			60°15'
LVIL	COM MO	N AND AFTERS Inches	HIP /	Inches	TOTAL		BUSE	COMMO	AFTERS	HIP A	ND EY Inches	Pitch !	59°39' . RISE	12 16 18 20 24	CENTE CENTE CENTE CENTE COMMO JACK R	RS 243 RS 321 RS 365 RS 405 RS 483	/IG" /IG" /IG" /8"  HIP /		Pitch 6	80°15'
14	COM MO	N AND	HIP /	Inches	TOTAL	RISE	1/4	COMMON	AFTERS	HIP A	Inches	Pitch !	59°39' . RISE	12 18 20 24 RUN	CENTE CENTE CENTE CENTE COMMO JACK R	RS 243 RS 321 RS 365 RS 405 RS 483 N AND AFTERS	/IG" /IG" /IG" /8"  HIP /	Inches	Pitch 6	80°15'
14	COM MO	n AND AFTERS Inches	HIP /	Inches	TOTAL	RISE	1/4	COMMON	Inches	HIP A	Inches	Pitch !	59°39' . RISE	12 18 20 24 RUN	CENTE CENTE CENTE CENTE COMMO JACK R	RS 243 RS 321 RS 365 RS 465 RS 483 N AND AFTERS Iraches	/IG" /IG" /IG" /8"  HIP /	Inches	Pitch 6	80°15'
14	COMMO JACK R Feet	Inches	HIP /VALL	Inches   16   18   18   18   18   18   18   18	TOTAL	RISE	1/4 1/2 3/4	COMMON JACK RA Feet	AND AFTERS Inches	HIP VALL	Inches	TOTAL Feet	RISE	12 18 20 24 RUN	CENTE CENTE CENTE CENTE COMMO	RS 243 RS 321 RS 321 RS 483 RS 483 N AND AFTERS Inches	/iG" /4" /iG" /iG" /iG" /iG" /iG" /iG" /iG" /iG	Inches	TOTAL Feet	RISE
14 1/2 34 1	COMMO JACK R Feet	Inches	Feet 2-24	Inches 9 16 18 18 23 16	TOTAL Feet	RISE Inches	1/4 1/2 3/4	COMMON JACK RA Feet	Inches	Feet 2-258		TOTAL Feet	RISE   Inches	12 16 18 20 24 RUN 1/4 1/2 34 1	CENTE CENTE COMMODIACK P. JACK	RS 243 RS 363 RS 363 RS 463 RS 463 N AND NAFTERS Inches	/c" /4" /4" /6" /6" /8"  HIP /VALI Feet	Inches 16 18 116 214	TOTAL Feet	RISE Inches
1/4 1/2 3/4 1 2	COMMOJACK R.   Feet	AND AFTERS   Inches   1/2   1/16   1/16   3/8	2-21/4 4-47/16	Inches   9   16   18   18   18   18   18   18   18	Total Feet	RISE Inches	1/4 1/2 3/4 1 2	COMMODIACH R   Feet	AND   FTERS   Inches   1/2     1/2     2     3   1/6     1/6	2-25/8 4-51/4	Inches   16   16   16   16   16   16   16   1	TOTAL Feet 1-8½ 3-5	RISE   Inches   3 7 16	12 18 20 24 RUN 1/4 1/2 34 1 2	CENTE CENTE CENTE CENTE CENTE CENTE COMMO JACK P. Feet 2-036 4-038	RS 243 RS 363 RS 463 RS 463 NAFTERS Inches	/4" 44" 44" 46" 46" 46" 46" 46" 46" 46" 4	Inches   I	TOTAL Feet  1-9 3-6	RISE Inches
14 1/2 3/4 1 2 3	1-11= 3-10= 5-10	AND AFTERS   Inches   -   2     -   2	2-24 4-476 6-616	Inches   16   18   18   18   18   18   18   18	1-8 3-4 5-0	PISE Inches	1/4 1/2 34 1 2 3	1-113/4 3-111/2 5-11/4	1 AND AFTERS Inches 2 3 15 16 5 16 5 16 5 16	2-25/8 4-51/6	Inches	TOTAL Feet  1-8½ 3-5 5-1½	RISE   Inches   3 \frac{116}{16}   5 \frac{1}{8}	12 18 20 24 RUN 1/4 1/2 34 1 2 3	CENTE	24 32 12 2 2 2 4 16 6 16 6 16	AG" 4" 4" 4" 4" 4" 4" 4" 4" 4" 4" 4" 4" 4"	1   1   1   1   1   1   1   1   1   1	TOTAL Feet	RISE Inches
1/4 1/2 3/4 1 2 3 4	1-115/6 3-105/8 5-10 7-95/6	AND AFTERS   Inches   -2   -2   -1   -1   -1   -1   -1   -1	2-21/6-61/6 8-81/6	Inches   Part   Pa	1-8 3-4 5-0 6-8	RISE   Inches	1/4 1/2 3/4 1 2 3	COMMODIACE R/  Feet	1 1 2 2 3 15 16 5 16 7 16 7 16	2-25/8 4-51/6 8-107/6	Inches	TOTAL Feet  1-8½ 3-5 5-1½ 6-10	RISE	12 18 200 24 RUN 1/4 1/2 34 1 2 3 4	CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE COMMODIACK P. Feet 2-036 4-038 6-016 8-034	24 3 24 3 25 25 26 26 26 26 26 26 26 26 26 26 26 26 26	76." 76." 76." 76." 76." 76." 76." 76."	Inches	TOTAL Feet  1-9 3-6 5-3 7-0	134 312 54
1/4 1/2 3/4 1 2 3 4 5	1-11-5 3-10-5 5-10 7-9-5 9-8-8	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2-2-4 4-4-6 6-6-6-6-6-6-16-10-11-8	Inches 9 16 15 8 2 16 4 3 6 9 6 8 3 4 10 16 16 16 16 16 16 16 16 16 16 16 16 16	1-8 3-4 5-0 6-8 8-4	PISE Inches	1/4 1/2 3/4 1 2 3	1-113/4 3-111/2 5-11/4	1 1 2 2 3 15 16 5 16 7 16 7 16	2-25/8 4-51/6	Inches   Proceed   Procede   Procede   Procede   Procede   Proceed   Procede   Proce	TOTAL Feet  1-8½ 3-5 5-1½ 6-10 8-6½	RISE   Inches   3 \frac{116}{16}   5 \frac{1}{8}	12 18 200 24 RUN 1/4 1/2 34 1 2 3 4	CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE COMMODIACK P. Feet 2-036 4-038 6-016 8-034	24 3 24 3 25 25 26 26 26 26 26 26 26 26 26 26 26 26 26	76." 76." 76." 76." 76." 76." 76." 76."	1   1   1   1   1   1   1   1   1   1	TOTAL Feet  1-9 3-6 5-3 7-0	134 312 54
1/4 1/2 3/4 1 2 3 4 5	1-115/6 3-105/8 5-10 7-95/6	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2-2-4 4-4-6 6-6-6-6-6-6-16-10-11-8	Inches 9 16 15 8 2 16 4 3 6 9 6 8 3 4 10 16 16 16 16 16 16 16 16 16 16 16 16 16	1-8 3-4 5-0 6-8 8-4	1   1   6   6   1   6   6   6   6   6	1/4 1/2 3/4 1 2 3 4 5	COMMODIACE R/  Feet	2 315 516 718 718 718 718 718	2-25/8 4-51/6 8-101/6	Inches   Proceedings   Proceedings   Procedure   Pro	TOTAL Feet  1-8½ 3-5 5-1½ 6-10 8-6½	RISE Inches    1   1   6   6   6   6   6   6   6   6	12 18 18 18 18 18 18 18 18 18 18 18 18 18	CENTE	24 3 36 5 36 5 36 5 36 5 36 5 36 5 36 5 3	2-3 4-6 6-9 9-0	Inches   I	1-9 3-6 5-3 7-0 8-9	134 312 54
1/4 1/2 3/4 1 2 3 4 5 6	1-115/6 3-105/8 5-10 7-95/8 11-7/5/8	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2-2 \frac{1}{4} 4-4 \frac{7}{16} 6-6 \frac{11}{16} 8-8 \frac{15}{16}  0-1  \frac{1}{8}  3-1 \frac{3}{8}	Inches   1   1   8   1   1   8   1   1   8   1   1	1-8 3-4 5-0 6-8 8-4	1   1   1   1   1   1   1   1   1   1	1/4 1/2 3/4 1 2 3 4 5 6	COMMOD JACK R   Feet	2 3 15 5 16 7 16 9 17 8 11 8	2-2\frac{5}{8} 4-5\frac{1}{4} 6-7\frac{13}{16} 8-10\frac{1}{16} 13-3\frac{11}{16}	Inches   Property	1-8½ 3-5 5-1½ 6-10 8-6½	RISE   Inches   1   1   1   1   1   1   1   1   1	12 1/2 2 3 4 5 6	CENTE	2 4 1 2 2 4 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1	2-3 4-6 6-9 9-0 11-3	Inches	1-9 3-6 5-3 7-0 8-9.	134 325 54 102
14 1/4 1/2 3 4 1 2 3 4 5 6	1-115/6 3-105/5 5-10 7-95/6 11-75/6 13-74/1	AND   AND	2-2-4 4-4-6 6-6-6 8-8-16 10-11-8 13-1-8 15-3-8	Inches   I	1-8 3-4 5-0 6-8 8-4 10-0	1   1   1   1   1   1   1   1   1   1	1/4 1/2 3/4 1 2 3 4 5 6	COMMODIAC   Commodia   Commodia	AND   FTERS   Inches	2-25 4-54 6-76 8-106 11-16 13-36 15-66	Inches     Inches   Inches     Inches	TOTAL   Feet     1-8½   3-5   5-1½   6-10   8-6½   10-3   11-11½	RISE   Inches	12 18 12 20 24 RUN 1/4 1/2 34 1 2 3 4 5 6 7	CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE COMMO CONTE CENTE	2 2 4 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1	2-3 4-6 6-9 9-0 11-3 13-6	Inches   I	1-9 3-6 5-3 7-0 8-9. 10-6 12-3	134   312   514   102   1-04
1/4 1/2 3/4 1 2 3 4 5 6 7 8	1-11=6 3-10=6 5-10 7-9=6 11-7=6 13-7=1 15-6=8	AND   AND	2-24 4-476 6-616 8-815 10-118 13-138 15-35 17-516	Inches   I	1-8 3-4 5-0 6-8 8-4 10-0 11-8	RISE   Inches	1/4 1/2 3/4 1 2 3 4 5 6 7 8	1-11\frac{3}{4}   3-11\frac{1}{2}   5-11\frac{1}{4}   7-11   9-10\frac{3}{4}   11-10\frac{1}{2}   13-10\frac{1}{4}   15-10\frac{1}{16}	1 1 2 2 3 15 16 5 16 5 16 7 16 16 17 18 1 1 - 1 7 8 1 1 - 3 16 1 -	2-25/8 4-51/6 6-71/8 8-107/8 11-11/8 13-31/8 15-61/8 17-87/8	1   1   1   1   1   1   1   1   1   1	TOTAL   Feet     1-8½   3-5     5-1½   6-10   8-6½   10-3   11-11½   13-8	RISE   Inches	124 1/2 34 1 2 3 4 5 6 7 8	2-03/6 4-03/6 6-01/6 8-03/4 10-01/5 12-1/8 14-1/5 16-1/2	2 4 1 2 2 4 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1	2-3 4-6 6-9 9-0 11-3 13-6 15-9		1-9 3-6 5-3 7-0 8-9 10-6 12-3 14-0	$\frac{3}{4}$   $\frac{3}{4}$   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{1}{1}$   $\frac{1}{2}$   $\frac{1}{1}$   $\frac{1}{2}$   $\frac{1}{1}$   $\frac{1}{2}$   $\frac{1}{1}$   $\frac{1}{2}$   $\frac{1}{1}$   $\frac{1}{2}$   $\frac{1}{1}$   $\frac{1}{1}$   $\frac{1}{2}$   $$
14 1/2 34 1 2 3 4 5 6 7 8	1-11\frac{1}{166} 3-10\frac{1}{8} 5-10 7-9\frac{1}{16} 9-8\frac{1}{8} 11-7\frac{1}{16} 13-7\frac{1}{4} 15-6\frac{1}{8} 17-5\frac{1}{16}	AND	2-2 4 4-4 6 6-6 6 8 8-8 6 16 10-11 8 13-1 8 17-5 13 17-5 17-5 17-5 17-5 17-5 17-5 17-5 17-5	1   1   1   1   1   1   1   1   1   1	1-8 3-4 5-0 6-8 8-4 10-0 11-8 13-4	RISE   Inches	1/4 1/2 3/4 1 2 3 4 5 6 7 8	1-11\frac{3}{4}   3-11\frac{1}{2}   5-11\frac{1}{4}   7-11   9-10\frac{3}{4}   11-10\frac{1}{2}   13-10\frac{1}{16}   17-9\frac{13}{16}   17-9\f	1-1-3-3-1-5-1-6-1-5-1-6-1-6-1-6-1-6-1-6-1-6-1-6	2-25/8 4-51/4 6-71/8 8-107/8 11-11/8 13-31/8 17-87/8 19-11/2	1   1   1   1   1   1   1   1   1   1	1-8½ 3-5 5-1½ 6-10 8-6½ 11-11½ 13-8	RISE   Inches	124 14 1/2 34 1 2 3 4 5 6 7 8 9	CENTE	2 4 1 2 2 4 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1	2-3 4-6 6-9 9-0 11-3 13-6 15-9 18-0 20-3	Inches   I	1-9 3-6 5-3 7-0 8-9 10-6 12-3 14-0 15-9	134   3-12   5-14   10-12   1-0-14   1-2
14 1/2 34 1 2 3 4 5 6 7 8 9	1-1156 3-108 5-10 7-95 11-75 13-74 15-68 17-556 19-54	AND   AND	2-2-4 4-4-6 6-6-6-6-6-10-11-18-13-13-13-13-13-13-13-13-13-13-13-13-13-	Inches   I	1-8 3-4 5-0 6-8 8-4 10-0 11-8 13-4 15-0	1   1   1   1   1   1   1   1   1   1	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9	1-11\frac{3}{4}   3-11\frac{1}{2}   5-11\frac{1}{4}   7-11   9-10\frac{3}{4}   11-10\frac{1}{2}   13-10\frac{1}{4}   15-10\frac{1}{16}   17-9\frac{13}{16}   19-9\frac{13}{16}   19-9\frac{16}{16}   19-9\fr	AND   FTERS   Inches   1/2   2   3   1/6   5   1/6   6   1/7   1/8   1   1/8   1   1/8   1   1/8   1   1/8   1   1/8   1   1/8   1   1/8   1   1/8   1   1/8   1   1/8   1   1/8   1   1/8   1	2-25 4-54 6-76 8-106 11-16 13-36 15-66 17-87 19-112 22-28	Inches     Inches	TOTAL   Feet	RISE   Inches	1/4 1/4 1/2 34 1 2 3 4 5 6 7 8 9	CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE COMMO DISTRICT CENTE CEN	2 4 1 2 2 4 1 6 1 6 1 6 8 1 - 6 8 1 - 8 1 6 8 1	2-3 4-6 6-9 9-0 11-3 13-6 15-9 18-0 20-3 22-6	Inches   I	1-9 3-6 5-3 7-0 8-9 10-6 12-3 14-0 15-9 17-6	13/4/4   1-2   1-3/4   1-5/2
14 1/2 34 1 2 3 4 5 6 7 8 9	1-115/6 3-108/5 5-10 7-95/6 11-715/1 13-74/1 15-68/8 17-515/6 19-54/2	AND   AND	2-2-4 4-4-6 6-6-6-6 10-11-8 13-1-8-16 17-5-16 17-8-16 21-10-6 24-0-12	Inches   I	1-8 3-4 5-0 6-8 8-4 10-0 11-8 13-4 15-0 16-8	1   1   1   1   1   1   1   1   1   1	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10	1-11\frac{3}{4}   3-11\frac{1}{2}   5-11\frac{1}{4}   7-11   9-10\frac{3}{6}   11-10\frac{1}{2}   13-10\frac{1}{6}   17-9\frac{13}{16}   19-9\frac{13}{16}   19-9\frac{13}{16}   19-9\frac{15}{16}   19-9\fr	AND FTERS Inches 2 3 15 6 5 16 7 16 7 16 1 1 7 18 1 1 - 18 1 1 1 1	2-25/8 4-51/4 6-71/8 11-11/8 13-31/8 15-61/8 17-87/8 19-11/2 22-21/8 24-43/4	1   1   1   1   1   1   1   1   1   1	TOTAL   Feet	RISE   Inches	12 3 4 1 2 3 4 5 6 7 8 9 10 11	2-03/6 4-03/6 8-03/4 10-01/6 12-18/8 14-15/6 16-12/18/8 18-11/6 20-18/8 22-21/6	2 4 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1	2-3 4-6 6-9 9-0 11-3 13-6 15-9 18-0 20-3 22-6 24-9	1   1   1   1   1   1   1   1   1   1	1-9 3-6 5-3 7-0 8-9 10-6 12-3 14-0 15-9 17-6 19-3	134   102   1-33   1-512   1-71   1
14 1/2 34 1 2 3 4 5 6 7 8 9 9	1-11=6 3-10=8 5-10 7-9=6 11-7=6 13-7=1 15-6=8 17-5=6 17-5=6 19-5=1 21-4=6 23-3=8	AND   AND	2-2 4 4-4 6 6-6 6 6 6 6 1 6 1 7 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8	Inches	1-8 3-4 5-0 6-8 8-4 10-0 11-8 13-4 15-0 16-8 18-4	1   1   1   1   1   1   1   1   1   1	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12	1-11\frac{3}{4}   3-11\frac{1}{2}   5-11\frac{1}{4}   7-11   9-10\frac{3}{4}   11-10\frac{1}{2}   13-10\frac{1}{16}   17-9\frac{13}{16}   19-9\frac{16}{16}   19-9\frac{16}{16}   21-9\frac{5}{16}   23-9\frac{16}{16}   23-9\frac{16}{16}   19-9\frac{16}{16}   19-9\fr	1-1 3 4 - 1-3 4 - 1-3 4 4 - 1-3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2-2\frac{5}{8} \\ 4-5\frac{1}{18} \\ 6-7\frac{13}{16} \\ 11-\frac{1}{16} \\ 13-3\frac{1}{16} \\ 17-8\frac{7}{8} \\ 19-11\frac{1}{2} \\ 24-4\frac{3}{4} \\ 26-7\frac{3}{8} \\ 26-73	1   1   1   1   1   1   1   1   1   1	TOTAL   Feet     1-8½   3-5   5-1½   6-10   8-6½   10-3   11-11½   13-8   15-4½   17-1   18-9½   20-6	RISE   Inches	12/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12	2-03/6 4-03/6 6-01/6 8-03/4 10-01/6 12-18/8 14-15/6 16-12/18/6 18-11/16 20-13/8 21-21/6 24-21/4	2 4 1 6 1 6 1 6 1 6 1 8 1 8 1 8 1 8 1 8 1 8	2-3 4-6 6-9 9-0 11-3 13-6 15-9 18-0 20-3 22-6 24-9 27-0	Inches   I	1-9 3-6 5-3 7-0 8-9 10-6 12-3 14-0 15-9 17-6 19-3 21-0	134   312   514   7   834   102   1-04   1-2   1-33   1-52
14 1/2 34 1 2 3 4 5 6 7 8 9 9	1-11=6 3-10=8 5-10 7-9=6 9-8=8 11-7=6 13-7=1 15-6=8 17-5=6 19-5=1 21-4=8 23-3=8 25-3=6	AND   AND	2-2 4 4-476 6-616 8-815 10-118 13-18 17-516 19-816 21-105 24-012 24-02 26-23 28-5	Inches   I	1-8 3-4 5-0 6-8 8-4 10-0 11-8 13-4 15-0 16-8 18-4 20-0 21-8	1   1   1   1   1   1   1   1   1   1	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13	1-11\frac{3}{4}   3-11\frac{1}{2}   5-11\frac{1}{4}   7-11   9-10\frac{3}{4}   11-10\frac{1}{2}   13-10\frac{1}{4}   15-10\frac{1}{16}   17-9\frac{13}{16}   19-9\frac{16}{16}   23-9\frac{16}{16}   23-9\frac{16}{16}   25-8\frac{16}{16}   25-8\frac{16}{16}	AND FTERS Inches 2 3 15 16 5 16 5 16 7 15 1 - 1 7 8 1 - 3 13 1 - 5 13 1 - 7	2-2\frac{5}{8} \\ 4-5\frac{1}{6} \\ 6-7\frac{13}{6} \\ 8-10\frac{7}{6} \\ 11-1\frac{1}{6} \\ 15-6\frac{5}{6} \\ 17-8\frac{7}{8} \\ 19-11\frac{1}{2} \\ 22-2\frac{1}{8} \\ 24-4\frac{3}{4} \\ 26-7\frac{3}{8} \\ 28-9\frac{15}{16} \\ 18-9\frac{15}{16} \\ 28-9\frac{15}{16} \\ 28-91	Inches   I	1-8½ 3-5 5-1½ 6-10 8-6½ 110-3 11-11½ 13-8 15-4½ 17-1 18-9½ 20-6 22-2½	RISE   Inches	124 14 1/2 34 1 2 3 4 5 6 7 8 9 10 11 12 13	CENTE	2 4 1 2 1 1 2 2 4 1 6 1 6 1 6 8 1 6 1 6 8	2-3 4-6 6-9 9-0 11-3 13-6 15-9 18-0 20-3 22-6 24-9 27-0 29-3	Inches   I	1-9 3-6 5-3 7-0 8-9. 10-6 12-3 14-0 15-9 17-6 19-3 21-0 22-9	$\frac{3}{4}$   $\frac{3}{2}$   $\frac{1}{2}$   $\frac{3}{4}$   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{1}{2}$   $\frac{3}{4}$   $\frac{3}{4}$   $\frac{1}{1}$   $\frac{1}{2}$   $\frac{3}{4}$   $\frac{3}{4}$   $\frac{1}{1}$   $\frac{3}{4}$   $\frac{3}{4}$   $\frac{1}{1}$   $\frac{3}{4}$   $$
1/4 1/2 3/4 1 2 3 4 5 6 7 7 8 9 9 10 12 13 4 4 14 14 14 14 14 14 14 14 14 14 14 14	1-11=6 3-10=8 5-10 7-9=6 11-7=6 13-7=1 15-6=8 17-5=6 17-5=6 19-5=1 21-4=6 23-3=8	AND   AND	2-2 4 4-4 6 6-6 6 6 6 6 1 6 1 7 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8	Inches   I	1-8 3-4 5-0 6-8 8-4 10-0 11-8 13-4 15-0 16-8 18-4	1   1   1   1   1   1   1   1   1   1	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13	1-11\frac{3}{4}   3-11\frac{1}{2}   5-11\frac{1}{4}   7-11   9-10\frac{3}{4}   11-10\frac{1}{2}   13-10\frac{1}{16}   17-9\frac{13}{16}   19-9\frac{16}{16}   19-9\frac{16}{16}   21-9\frac{5}{16}   23-9\frac{16}{16}   23-9\frac{16}{16}   19-9\frac{16}{16}   19-9\fr	7 AND FIERS Inches 2 3 15 16 5 16 7 16 16 17 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 16 17 17 16 17 17 17 17 17 17 17 17 17 17 17 17 17	2-2\frac{5}{8} \\ 4-5\frac{1}{18} \\ 6-7\frac{13}{16} \\ 11-\frac{1}{16} \\ 13-3\frac{1}{16} \\ 17-8\frac{7}{8} \\ 19-11\frac{1}{2} \\ 24-4\frac{3}{4} \\ 26-7\frac{3}{8} \\ 26-73	1   1   1   1   1   1   1   1   1   1	TOTAL   Feet     1-8½   3-5   5-1½   6-10   8-6½   10-3   11-11½   13-8   15-4½   17-1   18-9½   20-6	RISE   Inches	2 3 4 5 6 7 8 9 10 11 12 13 14	2-03/6 4-03/6 6-01/6 8-03/4 10-01/6 12-18/8 14-15/6 16-12/18/6 18-11/16 20-13/8 21-21/6 24-21/4	2 4 1 6 1 6 1 6 1 6 1 6 8 1 6 1 6 8 1 6 1 6	2-3 4-6 6-9 9-0 11-3 13-6 15-9 18-0 20-3 22-6 24-9 27-0	1   1   1   1   1   1   1   1   1   1	1-9 3-6 5-3 7-0 8-9 10-6 12-3 14-0 15-9 17-6 19-3 21-0	134   312   54   1012   1-014   1-2   1-334   1-714

T	ABLE OF	SPACI	NG		Rise	211/2"	T	ABLE O	SPAC	ING	IM	Rise	-	T	ABLE O	F SPAC	ING		Rise	221/
18 20 24	CENTE CENTE CENTE CENTE CENTE	RS 245, RS 3213 RS 3615 RS 4117 RS 4917	/8" /16" /16" /16" /4"	43/48	Pitch		12 16 18 20 24	CENTE	RS 25 RS 33 RS 37 RS 413 RS 50	/16" 1/16" 5/8" 1/4"	11/12	Pitch		12	CENTE CENTE	00 25	15/16 Pitch 61°56'			
MUN	JACK R	N AND AFTERS	HIP	AND		RISE	24.04	COMMC	AFTERS	HIP	AND	TOTAL	RISE	DIIN	COMMO	N AND	HIP	AND	TOTAL	L RIS
	Feet	Inches	Feet	Inches	Feet	Inches			Inches		Inches	Feet	Inches	_		Inches		Inches	Feet	Inch
4		2		16			4		2		9 16			4		2		16		
/2		10		18			1/2		116		13/16			1/2		11/16		13		
A	-	19/16		111		10	3/4		19/16		134			34		15		13/4		
1	2-05	216	2-33	25/16		113		2-116	216		25/16	1-10	113		2-12	21/8	2-43			
2	4-14	4 8	4-613	4%	3-7	3 16	_	4-21/8	43	4-79	48	3-8	311	2	4-3	44	4-81	411	3-9	3
3	6-13	616	6-1016	678	5-4늘	53	3	6-33	64	6-113	615	5-6	51/2	3	6-41	$6\frac{3}{8}$	7-0%	716	5-7=	
4	8-21	83/16	9-116	91/8	7-2	73	4	8-44	838	9-31/8	94	7-4	75	4	8-6	81	9-43	93	7-6	
5	$10-3\frac{1}{8}$	101	11-415	117	8-112	815	5	10-5 5	107	11-615	119	9-2	93	5	10-7=	10 \$	11-815	113	9-42	C
6	12-33	1-05	13-83	1-111	10-9	103	6	12-63	1-09	13-1011	1-178	11-0	11	6	12-9	$1-0\frac{3}{4}$	14-116	1-21	11-3	
7	$ 4-4\frac{3}{8} $	1-23	15-113	1-4	12-61	1-09	7	14-77	1-25	16-21	1-43/16	12-10	1-013	7	14-10=	1-27	16-54	1-47		1-
8	16-5	1-47	18-31	1-64	14-4	1-25	8	16-81	1-411	18-64	1-61/2	14-8	1-211	8	17-0	1-5	18-916		15-0	1-3
9	18-5 <del>8</del>	1-61	20-61	1-89		1-41/8	9	18-99	1-613	20-1016	1-813	16-6	1-4=	9	19-12	1-7%	21-15	1-91/8	16-10=	1-4
0	20-64	1-8-	22-915	1-1013	17-11	1-515	10	20-10-5	1-87	23-17	-   <del>3</del>	18-4	1-65	10	21-3	1-94		1-11=	18-9	1-0
Π	22-67	1-10 9	25-15	2-1-8	19-81	1-716	i	22-11-	1-11	25-5 \$	2-12	20-2	1-83		23-41/2	1-11=		2-113	20-7늘	1-8
2	24-71	2-0흉	27-416	- 3	21-6	1-91	12	25-011 	2-116	0	2-313		1-10	=	25-6		28-23			1-1
=	26-8		29-816	200	23-3½	, , ,	_	27-13	- 1 (O	30-13	F 0 10	23-10	1 10	=	27-7-	- 12	30-63	- 110	24-41	
4	$28 - 8\frac{3}{4}$		31-11호		25-1		14	29-213		32-5		25-8		=	29-9		32-10%		26-3	
					1-0			L L 16									175 1016			
7	30-93 ABLE OI	SDACI	34-2 <del>8</del> NG		26-10½ Rise	23"	7	31-378	SPAC	34-8 <del>3</del>		27-6	231/2"	15	31-10-	SPAC	35-2 <del>3</del>		28-1½	24
7	ARLE OF		NG	23/24		<b>23</b> " 62°27'	7	$31 - 3\frac{7}{8}$	SPAC RS 26 <sup>3</sup> RS 35 <sup>1</sup> RS 43 <sup>1</sup> RS 52 <sup>3</sup>	34-8 <del>3</del>	47/48	27-6	<b>23½</b> " 62°57'	15	31-10-	SPACI RS 261 RS 353 RS 401 RS 441 RS 531	35-2 <del>3</del>	1	28-12 Rise Pitch 6	
7	ABLE OF CENTE CENTE CENTE CENTE CENTE COMMO JACK R	SPACI RS 25'5 RS 34'9, RS 38'5 RS 43'2 RS 51'7 N AND AFTERS	NG //g" //6" //6" //6" /4" 8"	AND EY	Rise Pitch (	62°27'	T/ 12 16 18 20 24	31-378  ABLE OI " CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 263 RS 351 RS 399 RS 431 RS 523 N AND VETERS	34-834 ING /6" /16" /16" /4"	AND EY	27-6 Rise Pitch 6	2°57'	15 12 16 18 20 24	31-10-1	RS 261 RS 353 RS 401 RS 441 RS 531	35-23 NG 3/16" /4" //16"		Rise Pitch 6	3°2
7	ABLE OF CENTE CENTE CENTE CENTE CENTE COMMO JACK R	SPACI RS 2519 RS 349 RS 3615 RS 431/ RS 511/ N AND AFTERS	NG //g" //6" //6" //6" /4" 8"	AND EY Inches	Rise Pitch (	62°27'	T, 12 16 18 20 24	31-378  ABLE OI " CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 263 RS 351 RS 399 RS 4311 RS 523 N AND FTERS	34-834 ING /6" /16" /16" /4"	Inches	27-6 Rise Pitch 6	2°57'	15 12 16 18 20 24	31-10-2 ABLE OF " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE COMMODITACK R.	RS 26' RS 353 RS 40' RS 44' RS 53' N AND AFTERS	35-23 NG 3/16" /4" //16"	Inches	Rise Pitch 6	3°2
T/12 16 18 20 24	ABLE OF CENTE CENTE CENTE CENTE CENTE COMMO JACK R	SPACI RS 2519 RS 349 RS 3615 RS 431/ RS 511/ N AND AFTERS Inches	NG //g" //6" //6" //6" /4" 8"	Inches	Rise Pitch (	62°27'	T/ 12 16 18 20 24	31-378  ABLE OI " CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 263 RS 351 RS 399 RS 4311 RS 523 N AND FTERS Inches	34-834 ING /6" /16" /16" /4"	Inches	27-6 Rise Pitch 6	2°57'	15 12 16 18 20 24 RUN	31-10-2 ABLE OF " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE COMMODITACK R.	RS 261 RS 353 RS 401 RS 53 N AND AFTERS Inches	35-23 NG 3/16" /4" /16" /16"	Inches	Rise Pitch 6	3°2
T/12 16 18 20 24	ABLE OF CENTE CENTE CENTE CENTE CENTE COMMO JACK R	SPACI RS 2519 RS 349 RS 3815 RS 431/ RS 5117 N AND AFTERS Inches	NG //g" //6" //6" //6" /4" 8"	Inches	Rise Pitch (	62°27'	T/12 16 18 20 24 RUN 1/4 1/2	31-378  ABLE OI " CENTE " CENTE " CENTE " CENTE COMMO JACK R	RS 263 RS 354 RS 438 RS 523 N AND VFTERS Inches	34-834 ING /6" /16" /16" /4"	Inches	27-6 Rise Pitch 6	2°57'	15 12 18 18 24 24 24 1/2	31-10-2 ABLE OF " CENTE " CENTE " CENTE " CENTE " CENTE " CENTE COMMODITACK R.	RS 26 1	35-23 NG 3/16" /4" /16" /16"	Inches	Rise Pitch 6	3°2
T/12 16 18 20 24	ABLE OI "CENTE" CENTE CENTE CENTE CENTE COMMO JACK R	SPACI RS 2515 RS 349, RS 3615 RS 517 N AND AFTERS Inches	NG //16" //6" /4" 4" A"  HIP VALL Feet	Inches 5 8   3   16	Rise Pitch (	RISE	T/ 12 16 18 20 24	31-378 ABLE OI " CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE COMMON R. Feet	RS 26 <sup>3</sup> RS 35 <sup>3</sup> RS 35 <sup>3</sup> RS 34 <sup>3</sup> RS 52 <sup>3</sup> NAND FTERS Inches	34-83/4 ING	ND   EY   Inches	27-6 Rise Pitch 6 TOTAL Feet	RISE Inches	15 12 16 18 20 24 RUN	31-102 ABLE OR CENTE CENTE CENTE CENTE CENTE COMMO JACK R	RS 261 RS 3501 RS 444 RS 53 N AND AFTERS Inches	35-234 NG 3/16" /4" /16" /16" YALL Feet	Inches   14   13   16   16	Rise Pitch 6	215
T/12/16/18/22/4	ABLE OI " CENTE	SPACI RS 25 15 RS 34 15 RS 43 12 RS 517 N AND Inches 16 16 16 15 8	NG //16" //4" //4" //4" //4" //4" //4" //4" //	Inches   13   16   2   3   8	Rise Pitch ( TOTAL Feet	2°27' . RISE Inches	T/12 16 18 20 24 RUM	31-378 ADLE OI "CENTE" CENTE" CENTE" CENTE" CENTE "CENTE" CENTE "CENTE" CENTE COMMOJACK R. Feet	RS 26° RS 35° RS 35° RS 35° RS 43° RS 43° RS 52° RS	34-83 ING ING ING ING ING ING ING ING	Inches   13   13   16   27   16   16   16   16   16   16   16   1	27-6 Rise Pitch ( TOTAL Feet	RISE Inches	15 12 16 18 20 24 20 24 1/4 1/2 3/4	31-101 ABLE OF CENTE CEN	RS 261 RS 353 RS 444 RS 531 N AND AFTERS Inches	35-23 NG 1/4- 1/4- 1/4- 1/4- 1/4- 1/4- 1/4- 1/4-	Inches   1-4   1-8   1-8	Rise Pitch 6 TOTAL Feet	RIS Inch
T/12/16/18/20/24	ABLE OI CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE COMMO JACK R. Feet	SPACI RS 25 15 RS 34 15 RS 43 17 RS 517 N AND AFTERS Inches 1 16 1 5 8 2 3 2 16 4 16	NG //G" /*G" /*G" 4" 4"  HIP / VALL Feet  2-41/6 4-93/6	ND   EY   Inches	Rise Pitch ( TOTAL Feet	RISE Inches	T/12 16 18 200 24 1/4 1/2 344 1 2	31-378 ADLE OI " CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE CENTE COMMO CENTE CENTE COMMO CENTE	RS 26 <sup>3</sup> RS 35 <sup>3</sup> RS 35 <sup>3</sup> RS 35 <sup>3</sup> RS 52 <sup>3</sup> AND FTERS 16 18 15 8 2 16 4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	34-83 NG NG NG NG NG NG NG NG NG NG NG NG NG	Inches	27-6 Rise Pitch 6 TOTAL Feet  1-112 3-11	RISE   Inches   3   5   6	15 12 12 13 13 20 24 20 1/4 1/2 3/4 1	31-102 ABLE OR "CENTE" CENTE" CENTE" CENTE" CENTE C	RS 26 RS 353 RS 401 RS 401 RS 101 RS	35-23 NG 14-44 14-10-16 16-16	Inches	Rise Pitch 6 TOTAL Feet	Q1S
T/12/16/18/20/24	ABLE OI "CENTE" CENTE CONTE CO	SPACI RS 25 19 RS 34 9, RS 36 13 16 RS 43 12 16 RS 51 17 16 Inches 16 16 16 16 16 16 16 16 16 16	NG //c" /*6" 4."  Peet  2-496 4-936 7-13	Inches	Rise Pitch ( TOTAL Feet	RISE Inches    15   6   7   7   7   7   7   7   7   7   7	1/4 1/2 3/4 1 2 3/4	31-378  ALE OI CENTE CEN	RS 35 <sup>2</sup> 888 35 <sup>2</sup> 888 35 <sup>2</sup> 88 35 <sup>2</sup> 88 45 <sup>2</sup> 88 45 <sup>2</sup> 8	34-83 NG NG NG NG NG NG NG NG NG NG	Inches	27-6 Rise Pitch (  TOTAL Feet  1-11\frac{1}{2} 3-11 5-10\frac{1}{2}	RISE Inches    15   6   3   5   7   8   16   5   7   8   16   16   16   16   16   16   16	15 12 12 18 18 18 18 18 18 18 18 18 18 18 18 18	31-102 ABLE OF CENTE CE	RS 26 RS 353 AN AND AFTERS 16 18 116 2-14 42 6666	35-23 NG NG 14- 16- 16- 16- 16- 16- 16- 16- 16	11/4 1/3 1/3 7/3 7/3 7/3 1/3 1/3 1/3 1/3 1/3 1/3 1/3 1/3 1/3 1	Rise Pitch 6 TOTAL Feet	21s
T/12/16/18/22/4	2-115 6-513 8-73	SPACI RS 2515 RS 3615 RS 3615 RS 43/R RS 41/R N AND AFTERS Inches Inches 16 16 16 16 16 16 16 16 16 16 16 16 16	NG //c" /** /** /** /** /** /** /** /*	Inches	Rise Pitch ( TOTAL Feet 1-11 3-10 5-9 7-8	RISE Inches    15   16   313   16   53   716   716   16   16   16   16   16	T/12 16 16 16 16 16 16 16 16 16 16 16 16 16	31-378  ADLE OI  "CENTE" CENTE "CENTE	RS 263 RS 354 RS 354 RS 354 RS 523 RS	34-83 NG NG NG NG NG NG NG NG NG NG NG NG NG	Inches   I	27-6 Rise Pitch 6 TOTAL Feet  1-11- 3-11 5-10- 7-10	RISE Inches    15   16   3   16   5   7   16   7   16   16   16   16   16	15 12 18 20 24 24 1/4 1/2 3/4 1 2 3 4	31-10-2 ABLE OF CENTE	RS 26 RS 35 35 35 35 35 35 35 35 35 35 35 35 35	35-23 NG 16" 16" 16" YALL Feet 2-53 8 4-1013 16 7-416 9-916	Inches   1   1   1   1   1   1   1   1   1	Pise Pitch 6 TOTAL Feet 2-0 4-0 6-0 8-0	RIS
T/12/16/18/24/4/4/4/4/4/4/4/4/4/4/4/4/4/4/4/4/4/4	2-15 6-513 8-73 10-916	SPACI RS 2519 RS 3494 RS 3494 RS 431/R N AND AFTERS Inches 16 16 456 456 612 856 1016	NG //c" //	Inches	Rise Pitch ( TOTAL Feet 1-11 3-10 5-9 7-8 9-7	RISE Inches    15   16   16   16   16   16   16   16	T/122166188202244	31-378 ABLE OI " CENTE" CENTE " CENTE" CENTE " CENTE " CENTE COMMOD JACK R. Feet 2-238 4-434 6-716 8-916 10-1116	263 85 353 85 363 85 43 7 16 18 18 18 18 18 18 18 18 18 18 18 18 18	34-83 NG NG NG NG NG NG NG NG NG NG NG NG NG	Inches	27-6 Rise Pitch 6  TOTAL Feet  1-11\frac{1}{2} 3-11 5-10\frac{1}{2} 7-10 9-9\frac{1}{2}	RISE Inches    15   3   15   5   16   7   13   16   9   18   18   18   18   18   18   18	15 12/24 18/20 18/	31-10½ ABLE OF CENTE CEN	RS 263 RS 363 RS 463 RS	35-23 NG NG NG NG NG NG NG NG NG NG	Inches   Inc	Pise Pitch 6 TOTAL Feet 2-0 4-0 6-0 8-0 10-0	2153°2
T/12/16/18/20/24	2-15 4-38 6-516 8-74 10-916	SPACI RS 25 19 RS 36 19 RS 43 28 RS 41	NG //c" 4" 2-41/6 4-91/6 7-13/4 9-65/6 11-101/6 14-31/2	Inches	Rise Pitch ( TOTAL Feet   1-11   3-10   5-9   7-8   9-7   11-6	RISE Inches    15   6   7   11   7   7   7   7   7   7   7	T/12 16 18 20 24 14 1/2 34 1 2 3 4 5 6	31-37/8  ADLE OI "CENTE" CENTE" CENTE" CENTE" CENTE "CENTE" CENTE "CENTE	283 263 883 353 883 3434 883 4334 883 4334 883 4334 883 4334 1000 1000 1000 1000 1000 1000 1000	34-83 NG NG NG NG NG NG NG NG NG NG	Inches	27-6 Rise Pitch 6  TOTAL Feet  1-11\frac{1}{2} 3-11 5-10\frac{1}{2} 7-10 9-9\frac{1}{2} 11-9	RISE     15	15 T/2 18002 2 2 2 2 3 4 5 6	31-10½  ABLE OF  CENTE	RS 26 1 RS 26 1 RS 35 1 RS 3 40 1 RS 35 1 RS 3 40 1 RS 35 1 RS	35-23 NG NG NG NG NG NG NG NG NG NG	1-216 1-216 1-216 1-216 1-04 1-216	Pise Pitch 6 TOTAL Feet 2-0 4-0 6-0 8-0 10-0 12-0	2 153°2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2
T/21618224	CENTE	SPACI RS 2519 RS 3619 RS 3619 RS 43/R RS 511/N N AND AFTER3 Inches 166 166 166 456 612 858 1013 166 1-1	NG 16 14 14 14 14 14 16	1   15   1   2   16   16	Rise Pitch ( TOTAL Feet 1-11 3-10 5-9 7-8 9-7 11-6 13-5	RISE Inches    156   313   36   54   716   916   11-2   1-176	1/4 1/2 3/4 1 2 3 4 5 6	31-37/8  ADLE OI "CENTE" CENTE" CENTE" CENTE "CENTE" CENTE "CENTE "CENTE" CENTE "CENTE	RS 263 RS 353 RS 379 RS 438 RS 523 RS 523 FTERS 1 Inches I	34-83 NG NG NG NG NG NG NG NG NG NG	Inches	27-6 Rise Pitch 6  TOTAL Feet  1-11\frac{1}{2} 3-10 9-9\frac{1}{2} 11-9 13-8\frac{1}{2}	RISE Inches    15   6   6   7   8   7   18   7   18   18   18   1	15 T/2 116 18 20 24 1/2 3/4 1 2 3 4 5 6 7	31-10½ ABLE OF CENTE CEN	RS 26 1 RS 35 3 1 RS 3 4 3 1 RS	35-234 NG NG NG NG NG NG NG NG NG NG	Inches	2-0 4-0 6-0 8-0 10-0 12-0	2 10 1-6
T/12/16/18/22/4	2-15 6-513 8-73 10-916 12-15 17-376	SPACI RS 2519 RS 3619 RS 3619 RS 4512 N AND AFTERS Inches 1 16 1 16 4 16 6 12 8 5 10 13 1 1 - 1 1 - 3 18 1 - 5 16	NG	Inches	Rise Pitch (1) TOTAL Feet  1-11 3-10 5-9 7-8 9-7 11-6 13-5 15-4	RISE Inches    15   6   7   16   16	1/4 1/2 3/4 1 2 3 4 5 6 7	31-378 ABLE OI "CENTE" CENTE "CENTE" CENTE "CENTE" COMMO JACK R. Feet  2-238 4-434 6-716 8-916 10-1116 13-25 15-416 17-716	263 883 353 883 3439 885 523 97 1 AND 1-18 1-18 1-18 1-18 1-18 1-18 1-18 1-1	34-83 NG NG NG NG NG NG NG NG NG NG	Inches	27-6 Rise Pitch 6  TOTAL Feet  1-11½ 3-11 5-10½ 7-10 9-9½ 11-9 13-8½ 15-8	RISE Inches    15   6   7   13   15   16   17   17	15 T/2 18 18 18 18 18 18 18 18 18 18 18 18 18	31-10½ ABLE OF CENTE CEN	RS 26 RS 353 RS 401 RS 553 RS 401 RS 601 RS	35-234 NG NG VAL Feet 2-58 4-10136 7-416 9-916 12-3 14-838 17-134 19-78	Inches	2-0 4-0 6-0 8-0 10-0 12-0 14-0	2 1 1 - ( ) 1
T/2/16/18/22/24/11/2/33/4/2/3/3/2/3/2/3/2/3/2/3/2/3/2/3/2/3/2/3/2/3/2/3/2/2/3/2/2/3/2/2/3/2/2/3/2/2/2/3/2	2-15 4-38 6-516 8-74 10-916 17-36 19-52	SPACI RS 2519 RS 3619 RS 3619 RS 431, RS 511 N AND AFTERS Inchess 1 16 1 16	NG 16. 14. 16. 16. 16. 16. 16. 16. 16. 16. 16. 16	Inches   I	Rise Pitch (Feet) 1-11 3-10 5-9 7-8 9-7 11-6 13-5 15-4 17-3	15 E   Inches     15	1/4 1/2 3/4 1 2 3 4 5 6 7 8	31-37/8  ABLE OI  CENTE	25 26 27 26 27 26 27 26 27 26 27 27 27 27 27 27 27 27 27 27 27 27 27	34-83 NG 10-1 1	Inches	27-6 Rise Pitch 6  TOTAL Feet  1-11½ 3-11 5-10½ 7-10 9-9½ 11-9 13-8½ 15-8 17-7½	RISE Inches    15   16   17   18   18   18   18   18   18   18	15 T/2 18 2022 24 2 2 3 4 5 6 7 8 9	31-10½  ABLE OF CENTRE	RS 26 1 RS 350 1 RS 3	35-23 NG NG NG NG NG NG NG NG NG NG	Inches   I	2-0 4-0 6-0 8-0 10-0 12-0 14-0 18-0	21s3°2' 21s3°2' 21sch
T/2/16/5/24 4/2/4/11 2/3/4/11 2/3/4/11 2/3/4/11 2/3/4/11 2/3/4/11 2/3/4/11	2-156 4-38 6-516 8-74 10-916 12-118 15-18 17-36 19-5-2 21-776	SPACI RS 2519 RS 3619 RS 3619 RS 3619 RS 3619 RS 3619 RS 510 RS 510 R	NG	Inches	Rise Pitch ( TOTAL Feet 1-11 3-10 5-9 7-8 9-7 11-6 13-5 15-4 17-3 19-2	RISE Inches    156   313   35   4   716   1   1   1   1   1   1   1   1   1	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9	31-37/8  ADLE OI  CENTE CENTE CENTE CENTE CENTE COMMO  JACK R. Feet  2-23/8 4-43/4 6-73/6 10-11/8 13-25/16 17-71/6 17-71/6 19-92/2 21-11/8	23 26 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	34-83 NG 16-10 12-5 4-10 7-2\frac{15}{16} 12-0\frac{15}{16} 14-5\frac{16}{16} 14-5\frac{16}{16} 19-3\frac{1}{16} 21-8\frac{1}{16} 24-1\frac{1}{16}	Inches	27-6 Rise Pitch 6  TOTAL Feet  1-11½ 3-11 5-10½ 7-10 9-9½ 11-9 13-8½ 15-8 17-7½ 19-7	RISE	15 T/2 18 2024 RUN 1/4 1/2 3/4 - 2 3 4 5 6 7 8 9 10	31-10½  ABLE OF CENTER	25° 878 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	35-23 NG NG NG NG NG NG NG NG NG NG	Inches	2-0 4-0 6-0 8-0 10-0 12-0 14-0 16-0 18-0 20-0	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
T/2/18/2024 44/2 14/2 13/3 14/5 17/5 17/5 17/5 17/5 17/5 17/5 17/5 17	2-15/16 4-37/16 10-91/16 12-11/8 11-39/16	SPACI RS 2519 RS 3418 RS 3418	7-13-14 9-65-6 11-10-5-14 23-9-3-16 21-5-4 23-9-3-2 21-5-4 23-9-3-2 26-2-7-5	Inches	Rise Pitch ( TOTAL Feet 1-11 3-10 5-9 7-8 9-7 11-6 13-5 15-4 17-3 19-2 21-1	15   RISE   Inches	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9	31-378  ABLE OI  "CENTE" CENTE	25 26 3 26 3 26 3 26 3 26 3 26 3 26 3 26	34-83 NG NG NG NG NG NG NG NG NG NG	Inches	27-6 Rise Pitch 6  TOTAL Feet  1-11½ 3-11 5-10½ 7-10 9-9½ 11-9 13-8½ 15-8 17-7½ 19-7 21-6½	RISE Inches    156   315   57   67   67   67   67   67   67   6	15 T/2/19 20 20 1/4 1/2 3/4 - 2 3 4 5 6 7 8 9 10 11	31-10½  ABLE OF CENTE CE	RS 263 RS 3601 RS 3601 RS 4601 RS 4601	35-234 NG NG 16-7 16-7 16-7 16-7 16-7 16-7 17-134 17-134 17-134 17-136 17	Inches	2-0 4-0 6-0 8-0 10-0 12-0 18-0 20-0 22-0	2
T/2/6/18/2/24/11/2/3/4/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2	2-115 6-5136 8-73 10-911 12-115 17-36 17-36 17-36 19-52 21-76 23-93 25-115 23-93 25-115 23-93 25-115	SPACI RS 2519 RS 3619 RS 36	2-416 4-916 7-134 9-656 11-1016 14-312 16-816 19-016 21-54 23-913 26-27 26-27 26-7	Inches	Rise Pitch (Feet) 1-11 3-10 5-9 7-8 9-7 11-6 13-5 15-4 17-3 19-2 21-1 23-0	RISE   Inches	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12	31-378  ABLE OI  CENTE  COMMO  JACK R.  Feet	263 263 263 263 263 263 263 263 263 263	34-83 NG 100 100 100 100 100 100 100 10	Inches	27-6 Rise Pitch 6  TOTAL Feet  1-11½ 3-11 5-10½ 7-10 9-9½ 11-9 13-8½ 15-8 17-7½ 19-7 21-6½ 23-6	RISE Inches    156   315   57   67   67   67   67   67   67   6	15 TING 14 1/2 3/4 - 2 3 4 5 6 7 8 9 10 11 12	31-10½  ABLE OF CENTRE	RS 263 RS 3601 RS 3601 RS 4601 RS 4601	35-23 NG NG YALL Feet 2-58 4-1016 7-416 9-916 12-3 14-88 17-18 21-016 24-516 24-516 26-116 29-42 21-016 21-0	Inches	2-0 4-0 6-0 8-0 10-0 12-0 14-0 16-0 20-0 22-0 24-0	2
1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2	CENTER CENTER CONTROL	SPACI RS 2519 RS 3619 RS 36	7-13/4-1-10/15/16-21-54/23-9/30-11/9/3	Inches	Rise Pitch (Feet) 1-11 3-10 5-9 7-8 9-7 11-6 13-5 15-4 17-3 19-2 21-1 23-0 24-11	15 E   Inches	1/4 1/2 3/4 1 2 3 4 5 6 7 8 9 10 11 12 13	31-37/8  ADLE OI  CENTE  COMMO  JACK 2	25 26 3 26 3 26 3 26 3 26 3 26 3 26 3 26	34-834 NG 105 105 105 105 105 105 105 105	Inches	27-6 Rise Pitch 6  TOTAL Feet  1-11½ 3-11 5-10½ 7-10 9-9½ 11-9 13-8½ 15-8 17-7½ 19-7 21-6½ 23-6 25-5½	RISE Inches    15   6   6   6   6   6   6   6   6   6	15 TING 200 20 1 1/4 1/2 3/4 - 2 3 4 5 6 7 8 9 10 11 12 13	31-10½  ABLE OF CENTER	R\$ 263 R\$ 350 R\$ 350 R\$ 350 R\$ 553 NANDAFTERS 1 16 C 1-16 C 1-16 C 1-3 C 1-3 C 1-16 C 1-3 C 1	35-23 NG NG YALL Feet 2-58 4-1016 7-46 9-916 12-3 14-88 17-13 19-78 22-016 24-516 26-115 29-43 31-1018	Inches	2-0 4-0 6-0 8-0 10-0 12-0 14-0 16-0 20-0 22-0 24-0 26-0	213°2'  R13°2'  R13°2'
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#### MEMORANDUM SPECIFICATIONS

COVERING

MINIMUM STANDARDS OF

MATERIALS AND CONSTRUCTION

For

HOMASOTE PRECISION-BUILT HOMES

To Be Used In

e Type of House	Describe
Owner	
Location	
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Architect	
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Lending Instit ion	
Date	

## . MEMORANDUM SPECIFICATIONS

COVERING

# MINIMUM STANDARDS OF MATERIALS AND CONSTRUCTION

To Be Used In

## PRECISION-BUILT HOMES

1.	EXC	VATION WORK
	a.	Kind of Soil(Rock, Clay, Sand, Filled Ground)
		All ground upon which foundations rest must be able to support the superimposed load without subsidence.
		Placing of footings and other foundations upon filled ground is not desirable. Filled ground shall be thoroughly tested and approved by a competent authority before being built upon.
	b.	Depth of Excavation
		All foundations unless on rock must be sufficiently below finished grade line to avoid damage by frost. The minimum depth of foundations is generally given in local building codes.
	С.	Farm Tile Drain. Is it to be used around foundations, etc.?  Give particulars
		In all excavations where accumulation of water is likely to occur, foundations and basements shall be kept dry by placing a continuous row of 4" unglazed farm tile drain in a bed of stone or cinders around the outside of the wall at the level of the footings and below the basement floor level, and if necessary, a row or rows under the basement floor. All shall be connected through a running trap to the main drain or to other waste water system.
2.	WAT	ERPROOF FOUNDATION WALLS, etc. Give brief description
		All foundation walls below grade shall be made watertight either by using a waterproof concrete in the foundation wells, the concrete being specially mixed to obtain this quality, or by applying a coating of coal-tar pitch, or an asphalted or other waterproof membrane to the outside of the walls below

grade, or by parging the walls inside or outside with waterproof cement mortar, or by other suitable means. Basement floors shall also be made waterproof by any approved method, dependent upon the nature of the soil. Concrete block foundation walls are to be parged with cement mortar before applying the waterproofing.

3.	GRADING AND PLANTING: State briefly the extent of the work contemplated
4.	WALKS AND DRIVEWAYS. Describe briefly their extent, nature, and material to be used in the fill and in the top surface
	For sidewalks use a thin bed of gravel, stone, broken brick, or cinders with a fine gravel surface. For driveways a 6" bed of stone gravel, brick, or cinders with a fine gravel surface well rolled.
5.	FOOTINGSMaterials
	Footings either of concrete or of masonry shall be of sufficient width and thickness to spread the load safely upon the soil, having due regard to its nature.
6.	FOUNDATION WALLSMaterials
	• • • • • • • • • • • • • • • • • • • •
	Exterior foundation walls shall be of solid concrete or masonry, and of the thickness required by local building codes. All exposed walls above grade shall be cleaned down and dressed, faced or pointed as desired.
	Minimum requirements for concrete for foundation walls, etc.
	Concrete shall be laid in sound forms, erected true to line and well braced against deflection under load. The ingredients of the concrete shall be measured and shall consist of not more than three parts sand and five parts crushed stone up to 2" size to one part of cement by volume. Good clean gravel and sand up to six parts by volume to one part of cement may be used. The use of very wet concrete is to be avoided since the strength of concrete diminishes rapidly if more water is used than that necessary to make a plastic mass. It is strongly recommended that wherever facilities exist to provide proper supervision of the mixing and testing of concrete, "2,000 lb. concrete" be used in foundation walls.
7.	BASEMENT FLOORS: Describe briefly the construction to be used

In general, basement floors shall be finished in cement, trowelled smooth, laid integrally by preference, on a 3" to 4" bed of cinder. Cinder fill under basement floor shall not come in contact with cast iron drainpipe. The concrete used for basement floors shall consist of not more than three parts of sand and five parts stone or gravel to one part of cement by volume.

8.	BASEMENT FLOOR DRAINState type and where connected	
9.	OUTSIDE WALLSGive brief description of outside finish, whether sand finish, brick vencer, clapboards, shingles, or stone	
	veneer	
	and minish shall be applied dimently to the Homogote on the	

- a. Sand Finish shall be applied directly to the Homasote on the exterior walls according to the instructions and formula of the Homasote Company.
- b. Stone veneer 6" thick or better, or brick veneer 4" thick or better, may be used for the facing of the building. It should be well tied to the wall sections with metal ties, leaving 1" space between the stone or brick and the Homasote Sheathing.
- c. If clapboards or bevelled siding are used they shall be manufactured from No. 1 and 2 Common, or better, White Pine or equivalent grades in other suitable materials. Where shingles are used, 1" x 2" wood furring strips should be run horizontally across the wall and nailed securely through the Homasote into the studs of the wall sections. They should be spaced according to the spacing of the shingles to the weather. Shingles should be No. 1 or No. 2 Western Red Cedar, applied in accordance with the recommendations of the Red Cedar Shingle Bureau, or recognized brands of same shingles applied according to the manufacturer's recommendations. In no case should wood exterior facing be closer than 6" to the soil.

. Cement stucco and galvanized iron metal lath set on wood furring may be applied.

All lumber used in wall construction shall be No. 2 Douglas Fir, or equal.

10.	FIREPROOF	PARTITIONS	AND	FLOORSState	where	they	will	occur
			• • • •	• • • • • • • • • • • • •				

Local building codes shall be strictly observed in regard to the requirements of building fireproof partitions and floors in certain locations.

11.	CHIMNEYS FLUES, etc. State materials to be used, size of flues.
•	
	Flues from furnaces, stoves and fireplaces shall be lined with glazed clay tile pipe. All shall be built with brick or solid masonry walls 8" in thickness if not tile lined, and 4" if tile lined, and no smoke flue shall be less than 7½" diameter on the inside. The brick used shall be hard burned and all chimney walls shall be built in cement and lime mortar. If not lined, the inside faces of brick shall have struck joints pointed flush. Each smoke flue shall have a cast iron clean-out door set, wherever possible, at least 3' below the smoke inlet. No wood joists or beams shall rest on the brickwork forming a chimney flue. A stone, concrete or metal cap shall be applied to the top of each chimney to prevent disintegration of the brickwork. All chimneys shall be carried up to a height of 2'0" above the highest point of the roof unless they are at least 12' away from the ridge.
12.	FIREPLACES: State material to be used, finish and location
16.	
	***************************************
	All fireplaces shall have trimmer arches of concrete or brick, etc., 6° minimum thickness, to carry the hearths,
	and no wood forms or other wooden members shall remain in
	place below the hearth. Open fire places shall be properly lined with firebrick or tile linings and be provided with a
	suitable damper, set to the manufacturers! detailed in-
	structions. The net area of the flue from any fireplace shall be at least 1/12th of the area of the finished fire-
	place opening. It is desirable that an ash pit be provided below an open fireplace.
	below an open lifebrace.
13.	ROUGH CARPENTRY:
	a. Material: State kind of lumber and grade, to be used in frame
	work, joists, studding, etc
	and in flooring, roofing, sheathing, etc
	All materials used in joists, rafters, beams and studding
	etc., shall be structurally sound, free from hard and soft rot, large knots that would impair its strength, shakes, etc
	the following being No. 2 Common Douglas Fir or equal. It
	is recommended that joists 2% x 8" and up, be one grade

higher than listed above.

No joists shall be used in which knots of over one-fifth of the width of the joist occur in the middle half of the span.

Unexcavated space under wood floors shall be ventilated. For sub-flooring and roof sheathing, etc., all material shall be reasonably sound and entirely free of soft rot. No. 3 Common Douglas Fir or equal may be used for this purpose, providing such grading excludes material containing soft rot. All joists should be spaced not more than 16" on centers and rafters not more than 2'0" on centers. Studs, for wall and partition sections, shall be not greater than 16" on centers.

# 14. FINISH CARPENTRY: a. Window and Door Frames ............. b. Basement Window Frames and Sash: State material..... Window Sashes, etc .-- State whether double hung or casement or both..... Are storm sashes to be supplied?..... Are screens to be supplied?..... If so, state material to be used..... If shutters or outside blinds are to be supplied, give particulars including thickness..... If metal weatherstripping of windows and doors is included, give particulars..... d. Exterior Wood Trim -- State material to be used in outside trim, porches, etc., describing extent of trim briefly..... Material used in outside wood trim shall be No. 1 and No.2 Common White Pine or better, or equivalent grades of other suitable woods. e. Front Entrance Door and Frame: State material to be used....

	Door thickness (minimum $1\frac{3}{4}$ ")
f.	Other Exterior Doors: Where?
g.	Garage Doors: Describe briefly the type and thickness  Garage doors shall be at least 13 thick.
h.	Interior Trim: Describe material. Ground or First Floor  Second Floor, etc  Basement if finished
	All inside trim shall be out of clean, sound stock suitable for receiving a good paint or varnish finish. The choice of material is left with the owner.
	Interior Doors, etc. Describe type and material and thickness.  Ground or first floor
	Finished Flooring: Describe materials and thickness in principal rooms on Ground or First Floor.  In other rooms.  On Second floor, etc.  In Bathroom.  In Kitchen.
	Where floors are to be finished in wood, the material used shall be oak, birch, maple or beech, preferably 25/32" thick matched flooring in No. 2 grade or better, but 3/8" thick hardwood flooring may be used if laid on specially prepared under-

Where soft wood floors are called for, No. 1 Common Yellow

floors.

	- All Cleaning chall
	Pine Flooring, or better, should be used. All flooring shall be blind nailed.
k.	Main Staircase: Describe briefly materials to be used
	The main staircase shall be of neat construction designed in keeping with the general character of the house. Treads shall be of hardwood or edge grain Douglas Fir made out of stock $1\frac{1}{4}$ minimum thickness. Handrails shall be of hardwood.
	Service Stairs: Describe briefly, if any
m.	materials
n.	Built-In Ironing Board cholying etc. describe briefly
	extend and materials.
15. IN	SULATION: Describe briefly
· b	On top floor ceilings between sloping rafters and under flat
	All insulation material shall be Homasote Weatherproof Insulation. It shall be nailed on the exterior walls with 5D cement coated box nails, and shall be glued on interior walls and ceilings with Sote Glue, and 1 x 2 pressure strips walls and ceilings with Sote Glue, and 1 x 2 pressure strips used to hold the material in place for at least forty-eight hours until the glue has set. All glued Homasote shall be edge nailed 6" on centers with 6D galvanized casing nails.
	TILE WORK: State extent of work and type of tile to be used in Vestibule Floor
Ą	b. Bathrooms
. (	d. Elsewhere
	and the wall dadoes to a height of 400 (as the ball of the tiled with a suitable ceramic or other floor tile on the floors and a wall tile with a glazed or matt surface on the

walls. All shall be laid by skilled tilesetters on a concrete base for floor work and to a cement plaster backing on expanded metal lath for wall work. Tile work on vestibule floors and in kitchens, etc., is optional. If stone, slate or marble is to be used for vestibules, fireplace hearths, etc., it can be mentioned above under "d".

		BUILT-IN TOILET FITTINGS IN TILE WALL. Give list of such fit- tings as towel bar, tooth brush holder, soap and paper holders, etc., to be used, and their location
		***************************************
17.	ROO	OFING: State briefly the type of roofing to be used
	a.	On flat roofs
	b.	On pitched roofs
•	c.	The kind and weight of metal (or other) flashings to be used.
	d.	Gutters and down spouts
	e.	Connection to drain system

Flat roofs are required to be covered with a 4-ply 7 oz.coal tar saturated felt roof laid on dry felt properly secured to the roof and covered with coal tar pitch and gravel, all to the felt manufacturer's specification for 10 year guarantee roofs, or, as an alternative, with a 3-ply asphalt saturated felt roof composed of a base coat of 45 lb. felt and two layers of 15 lb. felt. laid to the manufacturer's specification.

Where the service is available it is recommended that a guarantee bond be obtained from a Surety Company through the roofing contractor and/or the manufacturer of the roofing material, guaranteeing to keep the roof in a watertight condition for a period of 10 years from the date of laying.

Sloping roofs shall be covered and left in a thoroughly watertight condition by the use of any one of the following materials (or better) provided always the use of the material selected is approved by the local code.

- l. Sheet Metal Roofing: Either 26 guage galvanized copperbearing sheet steel or 16 oz. copper laid on "rolls" or otherwise with raised joints to take care of expansion. These shall be laid on one layer of 7 oz. felt (or better) with joints lapped 4". All joints between metal sheets shall be "lock" jointed to allow for expansion and all nails and seams shall be soldered. No galvanized nails shall be used on copper roofing work, or vice versa, but the nails must be of the same metal as the roofing.
  - 2. Roofing Slate: Suitable hard burned tile or other similar

roof covering as desired, properly laid over a 7 oz. felt covering (or better) with valleys, hips, ridges, etc., all protected by 26 gauge galvanized copper-bearing sheet steel, or 16 oz. copper flashings.

- 3. Asphalted Felt Shingles of not less than 210 lbs. weight to the 100 square feet, in colors as desired, laid to the manufacturer's specification, with all ridges and valleys, etc., flashed with slate surfaced roofing material as supplied by the shingle manufacturer, or metal flashed as described above for slate roofing.
- 4. Wood Shingles: In localities where the use of wood shingles is approved by the local code, sloping roofs may be covered with wood shingles, equal to or hetter than the following grades.

Eastern Cedar Shingles: "Clears" or better, or shingles at least 16" long and 3" wide with at least 6" measured from the butt of clear material free from all defects. The butts of 5 shingles piled together shall measure at least 2" in thickness.

Western Cedar Shingles: No. 3 Grade, XXXXX or better, or shingles at least 16" long with not more than 30% of the lineal width being less than 4" wide, with 8" measured from the butt of clear material free from all defects. The butts of 5 shingles piled together shall measure at least 2" in thickness.

It is recommended that wood shingles be pre-dipped in creosote shingle stain, or given two coats of creosote shingle stain after erection. The use of hot dip process galvanized nails or of copper nails for wood shingles is recommended.

5. Sloping roofs of flat pitch may be covered with felt and pitch or asphalt to manufacturer's specification, if it is found advisable to do so.

#### 18. PAINTING AND GLAZING:

1.	Painting: Describe briefly the extent of the painting work to be done and give the number of coats to be applied (including the priming as one coat) and state the materials to be used.
	a. Painting outside woodwork
	b. Treating outside woodwork other than by painting (Stain, Varnish, etc.)
	c. Painting inside woodwork, trim, etc

d.																						_																		ч											
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All exterior woodwork to be painted shall have three coats, including the primer, of a white lead or white lead and zinc oxide paint mixed in pure linseed oil, and containing not less than 50% of white lead in the pigments of all medium light colored paints. A "First Quality" paint manufactured by a standard paint manufacturer fulfilling this requirement and delivered ready to use in the manufacturer's original unbroken packages may be used.

Exterior woodwork to be stained shall be stained with two coats of creosote stain, or with oil stain followed by two coats of outside (spar) varnish of approved manufacture.

Inside woodwork to be painted shall be given three coats, including primer, of a standard paint manufacturer's inside paint made with a zinc oxide, lithopone or titanium oxide base, or a mixture of these. The use of lead paint for inside work is not recommended but may be used at the owner's discretion.

Inside woodwork (usually hardwood) to be finished in the natural shall be stained, filled if required, shellacked, waxed, or varnished as desired by the owner.

Water paint is recommended for walls and ceilings of the Ground or First, and Second floor rooms. Walls, etc., may be papered at the owner's discretion.

2. Glazing. Describe briefly the weight of glass to be used in windows (permanent and storm sash) and mention any special glazing work (leaded glass, mirrors, etc.,) to be installed.

All sheet glass used in window sash shall be equal or better than that sold in the trade as "glazing" quality. "Single weight" may be used in openings up to 2 sq.ft. and "Double weight" in larger openings. All shall be back puttied, well sprigged and face puttied.

## 19. PLUMBING WORK:

1. Materials. Describe briefly the following materials to be used in the Plumbing Fixtures and drainage system.

a. For soil pipe drains. etc.		
Below basement floor	* * * * * * * * *	
Above basement floor		
b. For vent piping		
c. For cold water piping		
d. For hot water piping		
e. For domestic hot water tankcapacity		
f. For gas lines		

It is required that all drain lines below the basement floor be "extra heavy" (XH) cast iron soil pipe set with lead caulked joints, and medium weight or better soil pipe with lead caulked joints above the basement floor.

Vent lines, and short waste water lines, 2° or less in in internal diameter may be standard weight (or better) steel pipe galvanized, with cast or malleable galvanized fittings. Recessed fittings on waste lines are desirable. Cold and hot water piping shall be standard weight (or better) steel pipe galvanized, but in districts where the city or town water supply is known to have a corroding effect on galvanized pipe, copper, or brass tubing or piping, with copper or brass fittings shall be used, particularly for the hot water supply lines. In such districts a copper or other non-rusting metal tank is recommended for domestic mot water.

Gas piping shall be standard weight black steel pipe or better with black cast or malleable fittings.

Every care shall be taken to ensure the use of fittings of the same materials as the pipe with which they are used. Under no circumstances shall iron fittings be used with copper pipe, or copper fittings with iron pipe.

2.	Drainage System. Describe briefly the system of sewage disposal. If to city sewer state location of sewer line in reference to house
	If to septic tank state briefly its location, size and construction and means of disposal of overflow
,	
· .	

It is required in every house that the house drain shall be connected either to the city or town sewers according to local codes, or to a septic tank either in metal or in concrete of sufficient size to take care of the waste from the house, properly located and with the waste water from the tank distributed upon the soil through unglazed farm tile pipes, or otherwise satisfactorily disposed of.

	ine	fixtures to be used, in the following table, mentioning to of catalogue.
	a.	Basement: Laundry tubssize
		Ground or First Floor: Kitchen sink, size and type
	с.	Second Floor Principal Bathroom: W.C., type
		Second Bathroom, if any: W.C., type
	4. Dor	nestic Hot Water Supply. Describe method of heating
20.	HEATII be in:	WORK: Describe briefly the type of heating equipment to stalled under one of the following headings:
	a.	Hot Water Heating. Maker and size of boiler
	b.	Steam Heating: Maker and size of boiler
		Type of radiators
	c.	Hot Air Heating. Maker and size of furnace

	d.	If the following devices are to be installed for air conditioning purposes, etc., describe them briefly, giving maker's name and catalogue number if possible
		Motor driven fan
	e.	Has the heating system proposed, been designed by a heating engineer, employed by the owner, or by a qualified representative of the supply house, from the plans and specifications?
		What guarantee is being required of the heating contractor in respect to temperatures to be obtained in the house in cold weather?
		It is recommended that all houses be heated by a suitable central heating system of one of the types described above, the system being adequate to provide a reasonable degree of comfort (70° or better) in the coldest winter weather.
		It is desirable that the sizes of radiators, pipes, ducts, and furnaces be calculated by the architect or by a competent heating engineer or contractor, and it is required that a plan showing dimensions and locations of radiators or of air ducts be submitted with this specification. These dimensions may be shown on the regular floor plans or on a separate heating layout.
21.	ELI	ECTRICAL WORK:
		Do plans show location of electrical outlets? State type of wiring to be used. Knol and tube work
		LoomexB.X.Conduit
		Rigid metal conduit
		If so, what allowance has been made for their cost?
		Are any of the following services provided for in the contract?
		Electric bells and wiring
		Other special servicesdescribe
		•••••••••••••••••••••••••••••••••••••••
		A distribution system of electric light fixture outlets, switches and plug outlets, suitable and adequate for each individual house, shall be provided in all houses, the approximate location of such outlets being shown on the plans

submitted.

All electrical installations shall be made by a certified electrical contractor in accordance with the N.B.F.U. or other ruling authority's regulations relative thereto, and a certificate in the form provided obtained from such authority, before connection is made to the main distribution lines.

It is recommended that the dining room and halls, etc., be provided with ceiling outlets or wall outlets controlled by switches, four plug outlets or more in each living room, and one plug outlet or more in dining rooms, halls and kitchen, etc. In bedrooms one or two plug outlets according to the size of the room will be required, ceiling outlets being optional. Bathroom ceiling or wall outlets shall be controlled by switches.

Basements shall be provided with ceiling or other outlets, one or more in each sub-division.

Electric fixtures appropriate for the class of house and type of room are required for all ceiling and wall outlets in living room, halls, bathrooms, and bedrooms.

### 22. HARDWARE:

In general, the finishing hardware shall be suitable and appropriate for the type of house in which it is to be placed. As a Minimum Standard of Requirements the following items are listed:

Front Door Hardware. Butts, steel ball-bearing sherardized cadmium plated butts finished to match other hardware, size 4" x 4" for doors  $1\frac{3}{4}$ " thick--3 butts to the door are recommended.

Lock Set. A double bolt cylinder front door lock set with stamped brass knobs and plates, or a thumb latch set as desired, in rustproof metal. Other items such as letter plates, etc., shall be in stamped brass or other rustproof metal.

Inside Door Hardware. Butts, 2 per door, using loose pin, ball tipped pressed steel, plated butts, size  $3\frac{1}{2}$ " x  $3\frac{1}{2}$ " for doors 1-3/8" thick, and 4" x 4" for  $1\frac{3}{4}$ " doors.

Locks. Minimum size and type  $3\frac{1}{2}$ " casing with appropriate knobs and plates, or knobs and separate key escutcheons in

steel, plated in brass, bronze or nickel as required.

Rear Door. Steel butts  $3\frac{1}{2}$ " x  $3\frac{1}{2}$ " for 1-3/8" doors, 4" x 4" for  $1\frac{3}{4}$ " doors--3 butts per door recommended.

Pulleys in double hung windows shall be standard steel pulleys or better.

Window Locks. "Crescent" type, iron locks, plated, and "hook" sash lifts, are recommended.

Butts for casement windows shall be 3" x 3" steel butts, or better, for  $1\frac{3}{4}$ " sash, and  $2\frac{1}{2}$ " x  $2\frac{1}{2}$ " for 1-3/8" sash.

Casement Fasteners. "Tee handle" type fasteners are recommended for sashes 4'0" and under in height, and Cremone bolts for sashes over 4'0" high.

Kitchen Cupboard hardware shall consist of suitable plated cupboard door butts, knobs, metal or wood, drawer pulls, etc. Cast iron plated, or other finish, coat hooks of suitable type are required for closets off bedrooms, coat closet, etc.

	finishing	included in	the work to	be done to	
1.	in the flo	oor framing,	etc., give	dimensions a	insare to be used and location if
	If steel	lintels are t	to be used or	ver openings	in walls, de-

SPECIAL FOUITPMENT: Describe briefly any special equipment or

NOTE: Describe in detail any Special Material, Workmanship or Equipment not covered in the above specifications.

#### CERTIFICATE BY OWNER

I, the undersigned, hereby certify that the information contained in these specifications and the accompanying plans for the house which I purpose to erect is to the best of my knowledge and belief true and correct, and that I agree to erect, or cause to be erected, the house described herein according to these specifications and the said plans.

SIGNED.....(Owner)

## CERTIFICATE BY CONTRACTOR

I, the undersigned, contractor for the construction of the house described in these specifications and the accompanying plans, do hereby certify that I have examined the said plans and checked these specifications and that the said plans and specifications will be followed by me in the erection of the proposed house.

SIGNED.....(Contractor)

#### CERTIFICATE BY-ARCHITECT

I, the undersigned, architect, do hereby certify (a) that T prepared the accompanying plans and furnished the information as contained in these specifications, (b) that it is my intention to supervise the construction of the house referred to in the said plans and specifications and to ensure that such house is built in accordance with the said plans and specifications.

SIGNED....(Architect)

Note: If the construction of this house is not to be supervised by the Architect he will delete part (b) of his certificate.